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# POULTRY DIGEST

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Vol. 4, No. 37 January 15, 1942

## 1941 Poultry News in Review

EDITOR'S NOTE: The assistance of Leon Todd, J. W. Kinghorne, E. B. Heaton, Ralston Hannas, and Reese Hicks in checking the following list of events is gratefully acknowledged.

**Jan. 31**—Surplus Marketing Administration buys 2,605 cases of eggs in New York and 1,438 cases in Chicago, its first purchases in 1941.

**Feb. 1**—William F. Kirkpatrick retires as head of the poultry department of Connecticut State College after 29 years of service.

**Feb. 6-7**—Institute of American Poultry Industries at annual Fact Finding Conference, Omaha, Nebr., develops national program to eliminate worthless poultry from channels of trade.

**Feb. 12-22**—National Turkey Week observed with National Turkey Federation and Poultry and Egg National Board co-operating to promote increased turkey consumption.

**Feb. 15**—Northeastern Poultry Producer's Council establishes full time office with Leon Todd as secretary.

**March 4** — Federation of Eastern Egg and Poultry Cooperatives organized at Philadelphia.

**March 14**—Ground broken for new live poultry terminal in New York City.

**April 16**—Secretary of Agriculture Claude R. Wickard issues statement to the effect that about 6 per cent more eggs are needed in the next 15 months and that the government will support long term egg prices at an average of about 22 cents (Chicago basis) until June, 1943.

**April 25** — The Federal Surplus Commodities Corporation announces it contemplates the purchase of dried eggs and is prepared to receive offers for the sale of this product.

**May 16**—Surplus Marketing Administration announces that the government yesterday purchased frozen eggs equivalent to 351,166 cases of shell eggs and dried eggs equivalent to approximately 72,777 cases. This is approximately 1,059 cars.

**May 22**—Poultry Item, after 45 years of publication, is merged with the American Poultry Journal.

**May 31** — First shipment of eggs from the United States under lend-lease law arrives in British port.

**June 6** — Federal Surplus Commodities Corporation announces its offer and acceptance plan of purchasing eggs will be extended beyond its scheduled date of June 30 through December 31.

**June 23**—Chicago Mercantile Exchange raises margins on speculative transactions in egg futures from $300 to $360 per car.

**July 1**—John A. Hannah, administrator of the baby chick code during NRA days and former president of the International Baby Chick Association, assumes presidency of Michigan State College.

**July 1** — T. C. Byerly becomes senior poultry husbandman of the U. S. Department of Agriculture.

**July 15**—U. S. Department of Agriculture reports a new high record for June chick output—130,183,000 against 77,036,000 a year ago. Production of chicks by commercial hatcheries during the first six months of the year is estimated at 912,869,000 chicks, passing the total of 900,303,000 for the entire 12 months of 1939, the previous record year.

**July 16**—U. S. Department of Agriculture announces plan of storing feed on farms in the Northeast to assure adequate supplies of feed in the area in the event of a shortage of transportation. Grains held by the government are to be sold to cooperatives, aided by loans from the Farm Credit Administration, and the milled feeds will be stored on the farms of their members under an arrangement protecting the farmers against price declines.

**July 22-25** — International Baby Chick Association's silver jubilee convention at Kansas City, Mo., draws an attendance of 5,480, the largest registration at any chick convention.

**Aug. 12-15** — Roland M. Bethke, Ohio Agricultural Experiment Station, receives $1,000 Borden Award for outstanding poultry research work at Poultry Science Association's annual meeting at Stillwater, Okla.

G. T. Klein, extension poultryman of Massachusetts State College, receives Poultry Science Association's award for meritorious work in extension and college poultry teaching.

**Aug. 23**—The Producers' Price Current reports that the Office of Production Management had entered priorities on the construction of 35 to 40 new egg drying plants in the Midwest to increase dried egg production from about 12 million pounds annually to in excess of 100 million pounds. British requirements are estimated at 100 million pounds under the lend-lease program, while domestic needs are estimated at 14 million pounds.

**Aug. 29**—U. S. Department of Agriculture asks poultry breeders, commercial hatcheries and poultry marketing agencies to save and return all aluminum wing and leg bands for reprocessing into wing bands for future use. Announces substitutes have been found for aluminum in leg bands, but not in wing bands. Program of conservation and substitution makes it possible for poultry industry to get along with about 11,000 pounds of aluminum, or only 7 per cent of the 150,000 pounds used last year for wing and leg bands.

**Sept. 8**—Secretary of Agriculture Claude R. Wickard announces that the government will support prices of eggs and poultry at 85 per cent of parity until December 31, 1942. Sets 1942 goal of 4 billion dozens eggs, nearly 18 per cent more than the 1936-40 average.

**Sept. 3** — Federal Surplus Commodities Corporation invites offers of canned, boned chicken for first time.

**Sept. 8**—Chicago Mercantile Exchange reports that the volume of trading in futures during the first eight months of 1941 was the largest for that period since 1925.

**Sept. 22**—White Leghorn hen, entered by W. A. Seidel in Texas test, establishes new all-time individual record by laying 343 eggs and scoring 376.25 points in 51 weeks.

**Sept. 25-27**—Dried Egg School held in Kansas City, Mo., bringing together manufacturers and prospective operators of egg drying plants in connection with governments desire to increase dried egg production.

**Oct. 1**—Waverly Publications—R. I. Red Journal, Leghorn World, Plymouth Rock Monthly—taken over by American Poultry Journal.

**Oct. 8**—Homer Huntington, manager of Poultry and Egg National Board, reports that board material is being furnished to 924 radio stations, 714 home economists of utilities, daily newspapers in leading cities, and to millions of homes receiving publications devoted to food preparation.

**Oct. 9** — Representatives of 32 state poultry defense committees meet in Harrisburg, Pa., and appoint seven-man executive committee to represent poultry raisers in contact with government during the emergency period.

**Nov. 21**—U. S. Department of Agriculture announces that estimated deliveries of eggs for British shipment from April 29 to October 1, 1941, total 6,828,293 pounds of dried eggs, 31,066,260 pounds of frozen eggs, and 19,377,030 dozens of shell eggs.

**Nov. 21**—U. S. Bureau of Animal Industry announces that 12,214,011 chickens were pullorum-tested under official supervision in 47 states during 1940-41. The percentage of reactors was 2.87. In 1921, only 36,118 birds were tested, and 10.97 per cent were reactors.

**Nov. 22** — U. S. Department of Agriculture reports that the egg drying facilities, capable of producing 167 million pounds annually, are more than ample to meet expanded domestic needs and requirements for lend-lease shipment to Great Britain, and that further expansion is not desirable.

**Nov. 25**—United States District Court of Southern Iowa hands down a ruling that a hatchery operator must comply with the Wage and Hour Act.

**Dec. 1** — Pacific Egg Producers ceases operation in New York city after 19 years' activity in marketing eggs for Pacific Coast cooperative producers.

**Dec. 8**—Congress declares war on Japan following attack on Hawaii and American Pacific possessions.

**Dec. 15** — Average size of laying flocks through November was 318,245,000, largest for that month since 1930, U. S. Department of Agriculture reports.

**Dec. 17** — Willard C. Thompson, New Jersey College of Agriculture poultry department head, offers suggestions for blacking out poultry houses.

# The Industry's Economic Situation

By F. F. LININGER

*Condensed from a Talk*

"WE face inflation unless we act decisively and without delay," warned President Roosevelt in his Special Message to Congress, July 30, 1941. He added, "Today we stand, as we did in the closing months of 1915, at the beginning of an upward sweep of the whole price structure."

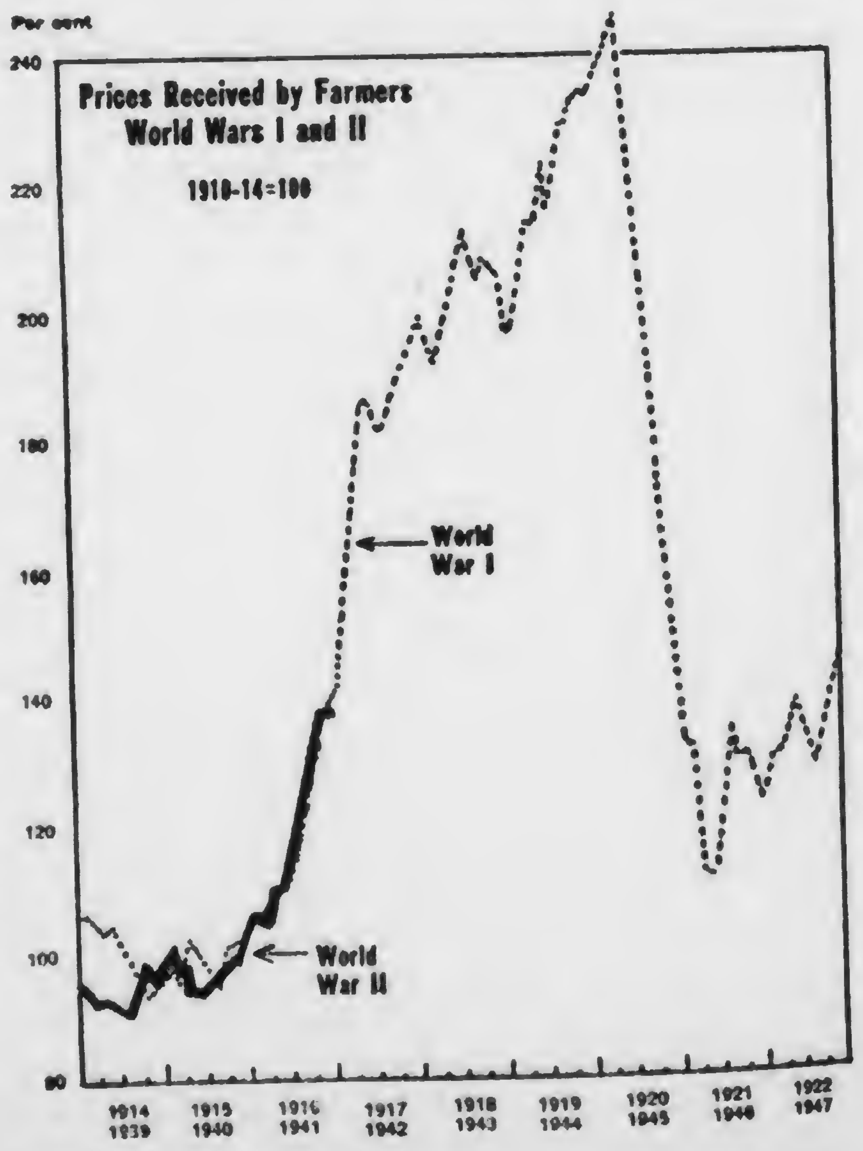
### Farm Prices Rise Rapidly

How far we have travelled along the inflation path of World War I is shown by the index of price changes. During the first year of World War I, prices remained fairly stable. After the second year, by August 1916, wholesale prices in the United States had risen 23 per cent. After three years of war, in August 1917, 81 per cent. The peak of inflation was reached in May 1920, when the index was 144 per cent above the pre-war level.

During the first year of World War II, from August 1939 to August 1940, the wholesale price index rose only slightly. After the second year of war, by August 1941, it had advanced 21 per cent. Indeed, the price pattern thus far is frighteningly similar to that of World War I.

We should note the farm price index rises more rapidly than the index of all commodities. For example, in early October, average wholesale prices of farm products were 38 per cent higher than a year ago. The U. S. Department of Labor computes a still more sensitive price index for 28 basic commodities. This index on September 28, 1941, was 56 per cent higher than August 1939.

Chicken and egg prices in the United States rose 44 per cent in the last year. In the same period, grain prices advanced 30 per cent.



It is apparent that during an inflation period not all prices rise at the same rate. In deflation they don't go down together either. Farmers suffered heavy losses in the days of 1920. This is one of the important reasons why present efforts are aimed at controlling inflation.

### Price Control Methods

Some methods of price control are already in operation. The campaign to "mop up" consumer purchasing power by inducing people to buy defense bonds, or by taxing them for the defense program, are both forms of inflation control. The current congressional consideration of price control legislation deals with the most drastic procedure, actual price fixing by government edict.

All business operations, including those of the poultry industry, are already being affected by inflationary tendencies and by the existing controls. The effectiveness of control measures hinges on the degree that the American people impose restrictions and submit to them. This is the outstanding fact in the economic situation of all industry today.

The poultry industry is flourishing today. This year, 14 per cent more chickens were raised than during 1940. Egg production in 1942 is expected to be about 10 per cent greater than this year. Desired increases of production are possible without expanding fixed capital facilities. It is a good time to work out of rather than in to debt.

From "The Present Economic Situation of the Poultry Industry"
Presented at the 21st Annual Poultry Convention, Penn State College, State College, Pa., Oct. 27 to 31, 1941

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# *Warm Water Means More Eggs*

If the drinking water in the laying house freezes, it is certain that the use of a poultry water warmer will increase the winter egg production. In fact, satisfied users find automatic poultry water warmers as important as lights in increasing the winter income from layers.

Eggs are 65 per cent water and any water or milk fed must be available at proper temperatures at all times if the desirable high consumption of liquids is to be maintained. Agricultural Experiment Station data show an increase of 20 per cent in water consumption due to keeping the water warm as compared to allowing a scale of ice to form. Keeping the water at 40° F. increased consumption by another 5 per cent and maximum consumption occurs where the temperature is kept at around 50° F.

—Rural Electrification News, November, 1941.

# Buy Better Chicks Early

By **MORLEY A. JULL**
University of Maryland

*Condensed from Poultry Tribune*

ALL flock owners would like to make more profit in egg production, but many of them don't want to work too hard for it. Strange as it may seem, if the war lasts another year of two, there ought to be good money in egg production during 1942 and 1943. Flock owners who want to make the greatest profits out of their laying flocks in those years should make plans now to secure the kind of stock next spring that will give the best results.

The world war has already taught us some valuable lessons. Progressive poultrymen have already learned at least two lessons: (1) costs of production have increased and probably will continue to increase, and (2) efficient laying strains are absolutely necessary to make greatest profits in production. The need for more efficient production is the outstanding challenge that faces every poultryman today.

## Need More Eggs

Another challenge facing the poultry industry is the urgent need for increased egg production. Secretary Wickard has stated recently that 10 per cent more chickens should be raised in 1942 than in 1941, and that 10 per cent more eggs should be produced in 1942 than in 1941. If these goals are attained, the increase in chickens raised will amount to about 16 per cent more than the annual average from 1936 to 1940 and about 18 per cent increase in egg production over the annual average from 1936 to 1940.

## Better Layers . . . Not More

What is the most logical way to increase egg production, more layers or better layers? Of course, if more chickens are raised in 1942 than in 1941, there are bound to be more pullets raised and saved for egg production for the 1942-1943 laying season, providing the feed-egg ratio is favorable in the fall of 1942. The most logical and profitable way for flock owners to increase egg production is to keep better layers rather than more layers. As a matter of fact, the higher the price of feed in relation to the price of eggs, the greater the need for keeping layers that will transform feed into eggs as efficiently as possible.

The efficiency with which feed is converted into eggs varies according to the size of the layer and the number of eggs produced. The feed required for the production of one egg amounts to about one-eighth of a pound in addition to the feed required to maintain the body weight, activity, and body functions of the layer. In the case of White Leghorns weighing about 3½ pounds, the maintenance requirements amount to about 56 pounds of feed per year. In the case of Plymouth Rocks weighing about 6 pounds, the maintenance requirements amount to about 68 pounds of feed per year.

The number of pounds of feed required to produce one dozen eggs is greatly influenced by the number of eggs produced per bird. A 4-pound hen laying 100 eggs per year requires over eight pounds of feed per dozen eggs laid, whereas a 4-pound hen laying 200 eggs per year requires about five pounds of feed per dozen eggs laid.

## Lose Money with Poor Hens

One example of the high cost to producers of inefficiency in egg production may be taken from the report of K. T. Wright, Farm Management Department, Michigan State College of Agriculture. Based upon the results of his survey, he estimates that probably 70 per cent of the 11 million hens in Michigan produced an average of 85 eggs per bird or 20 cents per bird less than enough to pay for feed, labor, and other expenses involved in producing eggs. This represents a loss of 1½ million dollars annually because of the inefficiency of 8 million low-producing hens.

In many states, the percentage of inefficient hens is higher than in Michigan. The relative inefficiency of such a high proportion of the flocks of the country, both in egg and poultry meat production, is one of the major problems facing the industry. Inefficiency in the utilization of feed, the cost of which usually represents over one-half of the cost of producing eggs and poultry meat, is accounted for largely by poor breeding, improperly balanced diets, mismanagement, or a combination of these factors.

## Feed Cost of Egg Production

The development of strains noted for good laying ability is of paramount importance in the degree of efficiency with which feed is utilized for egg production. The following results secured with White Leghorns at the Maryland egg laying contests demonstrate the importance of securing good egg production.

| Avg. Egg Production Per Bird | Pounds of Feed Per Dozen Eggs |
|---|---|
| 127 | 5.96 |
| 156 | 5.80 |
| 185 | 5.10 |
| 214 | 4.57 |
| 243 | 4.20 |

Feed consumption per bird is greater among large-sized birds than among small sized birds. Therefore, a sound breeding program should

Poultry-Dairy Publishing Co., Mt. Morris, Ill.
(Poultry Tribune, December, 1941)

take cognizance of the relationship between size of bird, size of egg, and efficiency in the utilization of feed in egg production.

The problem of the efficiency in the utilization of feed in relation to size of bird recently has been studied by T. C. Byerly, formerly of the Maryland Agricultural Experiment Station. He has observed that the average feed requirement for maintenance varies from 46.8 pounds for 3-pound birds to 81.4 pounds for 7-pound birds. For each 100 standard weight eggs laid, an additional 14.2 pounds of feed are required. The pounds of feed required according to size of bird, without gain or loss in body weight, and number of eggs laid were estimated to be for 3-pound, 100-egg birds, 61.0 pounds of feed or 7.3 pounds feed per dozen; for 7-pound, 200-egg birds, 109.8 pounds of feed or 6.6 pounds of feed per dozen.

### Consider Meat Value

While it is probably true that of two hens varying considerably in size but laying the same number of eggs of the same size, the smaller bird is more efficient, nevertheless on most farms the meat-producing value of the birds should always be kept in mind. It is probably true that 5 and 6 pound hens will produce chickens that will grow faster into fryers and roasters than 3 and 4 pound hens of the same breed.

Many farmers and commercial poultrymen are making plans now to buy more chicks in the spring of 1942. Most of them ought to be planning to buy better chicks than they have ever bought before.

But since more chicks probably will be hatched in 1942, let's see when those extra chicks should be bought. In 1941, the U. S. Government request for increased egg production was made public relatively late in the hatching season, so many late-hatched chicks were bought. It is an established fact that late-hatched chicks do not grow as fast as early-hatched chicks. Moreover, late-hatched chicks are liable to suffer greater mortality than early-hatched chicks.

### Early Pullets Lay in Fall

Another factor in favor of early-hatched chicks is that the pullets start to lay earlier in the fall than late-hatched chicks. This is very important because of the higher price of eggs in the late summer and early fall as compared with other seasons of the year. The average farm price in cents per dozen during 1940 was as follows.

| | | | |
|---|---|---|---|
| July | 16.4 | Jan. | 18.3 |
| Aug. | 17.2 | Feb. | 20.2 |
| Sept. | 21.0 | Mar. | 15.4 |
| Oct. | 22.9 | April | 15.0 |
| Nov. | 25.8 | May | 15.1 |
| Dec. | 20.5 | June | 14.4 |

It has been shown repeatedly that the number of eggs laid during the late summer and fall months is one of the most important factors in determining the profits from the flock.

Farmers and commercial poultrymen should plan to buy their chicks early in the season, especially the extra ones. Buy February and early March chicks rather than late May and June chicks.

### Good Chicks a Good Investment

Besides buying chicks early in the season, it is very important to buy good quality chicks from well bred stock. Good egg production per bird is very necessary to make the greatest profits in egg production.

Chicks should be secured from breeder-hatchery operators or commercial hatchery operators who are carrying on a sound breeding program to develop high-laying strains. A few cents more per chick for chicks of superior quality will prove to be a mighty good investment. Chicks of good quality nearly always suffer less mortality than chicks of poor quality, and they grow faster, start to lay earlier, and lay better.

The selection of breeding stock on the basis of egg production records has proved unreliable. Selection based on pedigree is superior to selection based on individual performance, but also has distinct limitations. Selection on the progeny-test basis has been demonstrated to be the most reliable procedure in developing efficiency in egg production.

One example will serve to emphasize the importance of selecting breeders on the basis of family performance. Data collected by L. W. Taylor and I. M. Lerner, California Experiment Station, show the relationship between the average egg production of daughters based on the average egg production of different groups of dams and their full-sisters.

| Avg. Egg Production of Dams and Their Full Sisters | Avg. Egg Production of Daughters |
|---|---|
| 109 | 139 |
| 192 | 205 |
| 201 | 213 |
| 230 | 215 |

The family method of selecting breeding stock is one phase of applying the progeny test in breeding for increased egg production. Poultry breeders everywhere would be well advised to give much more attention to the progeny test and much less attention to individual performance in selecting breeding stock.

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I HOLD a mirror at the edge of the brooder hover to see the flame. In this way I need not get into the litter to see under, and the chicks are not disturbed by lifting the hover.

—Mrs. C. E. Foster, Capper's Farmer, October, 1941.

# Avoiding Failure in the Poultry Business

By WILLARD C. THOMPSON
New Jersey Agricultural Experiment Station

*Reprinted from Hints to Poultrymen*

IF poultrymen are to do their part in the defense program, they should seriously consider the factors which have in the past caused failure in poultry farming. Then they can take measures to counteract such factors in this emergency.

### Good Stock is Important

Choose well-bred stock at the start of the poultry enterprise. Buy replacement or additional poultry stock on a quality basis and not on a price basis alone. Poultrymen hatching and raising their own replacement stock should adopt a continuous breeding improvement program, the main feature of which must be critical attention to annual breeder selection.

Use more pedigreed males, thus insuring an improved quality of daughters for each succeeding generation of laying stock. Segregate the best 25 per cent of the season's pullets, place them in a separate flock, and trapnest them for at least the winter season. Select future breeders from these "best 25 per cent" pullets.

The careful financing of the poultry venture at the start is very important. Attempt to pay as you go. Put a definite control on buying. Many persons thoughtlessly or carelessly yield to temptations to buy materials and supplies which are not absolutely necessary. Prepare a budget and hold to it tenaciously. Planning is carrying the budget one step further. It is having a definite idea for the future and working toward that objective.

### Use Feed Wisely

Inefficient and wasteful feeding practices have often sent the costs of production so high that profits have disappeared. Choose an economical and efficient ration, one which has been recommended and proved, and hold to it consistently. Buy feed carefully, keeping an eye on the grain markets and the crop reports. Increase storage facilities on the farm, if possible. Attempt to improve feeding methods and practices so as to get the right rations into every bird every day. Fight a war on rats.

### Be Businesslike

Make an annual inventory which will show the amount and value of poultry stock on hand, operating materials and supplies, and amount and condition of fixed equipment, such as houses and incubators. Work out and adhere strictly to a systematic daily management which will lower the cost of doing the job. Use hired labor to best possible advantage. Seek for and employ labor-saving devices.

New Jersey Agricultural Experiment Station, New Brunswick, N. J.
Hints to Poultrymen, August-September, 1941

The minimum daily record on a poultry plant should indicate the amount and rate of egg production. Careful and accurate records should be kept of all operating charges. A record of removals from each respective poultry flock should be kept. This should include mortality, culling, and sales. Keep available for frequent inspection the reports of market prices on commodities used on the poultry farm, as well as quotations on eggs and poultry products. Determine from time to time your cost of producing a dozen eggs.

### Keep on Learning

A lack of poultry facts has been a severe handicap on many plants. Bulletins, circulars, books, and periodicals may be had, covering many of the facts underlying modern poultry and egg production. Get in touch with the poultry literature and use it. For many persons, it is possible to attend poultry farming short courses, community courses, or other formal poultry educational groups.

Actual experience under poultrymen who have learned how to operate their farms well is an asset which many young poultrymen may acquire. Interview those who know something about the modern poultry and egg industry. Be willing to be told of new methods. Get in touch with active poultry organizations and participate in their activities.

### Be a Good Retailer

Attracting new customers for eggs and poultry is always important, and the holding of repeat customers is even of greater financial advantage. Study the consumer's point of view and aim to supply a product which will sell itself in the future. The packaging of eggs and poultry products must keep in step with the times. Quality grades and standards must be the grades and standards upon which poultry eggs are packed for the trade.

Shorten the route between the poultry plant and the ultimate consumer. The more direct the contact between producer and consumer, the better are the chances for fresh quality and better prices for both parties.

Poultrymen should take advantage of their geographical location and their nearby population centers.

### Diversify Your Production

A lack of diversification of crops sometimes contributes to lowered income. Table eggs may be the central product around which your business is built, but they should not be the only product offered by even specialized egg farmers.

Many plants should add a heavy breed to the White Leghorn. Broilers and roasters from the heavier breeds may be made to supplement table egg production.

More attention should be given to the production of higher quality poultry meat. Increase the output of the products of poultry breeding. The miscellaneous enterprises which are included within the poultry industry, such as turkeys, ducks, geese, guinea fowls, pigeons, and even rabbits, find a place on many plants.

### Wage War on Disease

Disease has been an increasingly serious enemy of poultry farming in recent years. Breed for health, vigor, and constitutional strength. Select both male and female breeders for vigorous health. More definite sanitary care of every part of the poultry plant is economically possible and may be an insurance against entry of disease producing agencies.

Every plant should embody the principle of quarantine management, which simply means elimination of as many contacts of the fowls with the outside as may be possible. The pathologists' recommendation of "one-way traffic" for livestock on the poultry farm is basically sound. This means that live birds should travel only away from and not to the farm. This means the introduction of new stock through hatching eggs or baby chicks.

Let no fowl die without some effort being made to ascertain the cause of its death and the prevention of further cases. Consult poultry pathologists, veterinarians, or others who know poultry diseases.

### Uncontrollable Factors

From time to time poultry farm failures have been found to be the result of circumstances quite outside of the control of the poultrymen themselves, such as storms, floods, tornadoes, and other disasters. In this world of upset economic conditions, many things have an unfavorable effect on prices, markets, the movements of commodities, and the events of trade. Illness and unusual family expenses are sometimes too great for the poultry business to stand.

The beginner must, of course, avoid plunging into a poultry business that is too large. He must also avoid the error of believing that a good living is possible from a small flock. A one-man farm usually needs about 1,200 laying birds for efficient use of labor.

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EDIBLE pets such as roosters and rabbits are popular in France these days. No food is available for even gold fish or canaries.

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# Chickens Have a Social Organization

### By A. M. GUHL

*Condensed from American Poultry Journal*

BIOLOGISTS have become very much interested in the social organization found in several classes of back-boned animals. Birds have been given much study in this regard, and chickens have been very useful laboratory animals for experimentation. This social or peck-order is based on the pecks given and received by the individuals, in which the social position of each is determined by the number of birds it pecks. The truly dominant bird pecks all in its flock, and the bottom bird in the order typically pecks none and is pecked by all; the rest may form a straight-line peck-order, but pecking-triangles may occur.

### Peck-Order Is Stable

The nature of this hierarchy has been given much experimental attention by Dr. W. C. Allee at the University of Chicago. The studies made and in progress are various and become quite complex. The information given here is derived from small flocks of White Leghorn chickens. What factors make for social success or social level in a flock? What physiological and psychological aspects are there, if any? What is the significance of a social order in chickens?

The peck-order in flocks of mature hens is relatively stable; in pullets it is more unstable or formative, while in groups of cocks, the order may tend to change. In mixed flocks, all of the cocks dominate all of the hens. When strange birds are brought together, fights occur between all of the individuals, until a decision is reached, or there may be passive submission. Upon the outcome of these encounters, the social order is based.

A beaten bird will thereafter avoid any individual to whom it lost in the introductory contest. Back pecks and reversals are rare among hens. Peck-orders become less regular as the number in the group is increased, probably due to the limitation of the birds in remembering so many individuals.

The intensity of the peck varies. Blood may be drawn from the comb, feathers may be plucked, or the peck may be undelivered and constitutes a threat. The blow is usually directed at the head. Pecks are given most frequently at feeding time, and are rarely given when roosting.

### What It Takes to Dominate

By fighting strange hens in pairs, it was found that several factors are

American Poultry Journal, 536 So. Clark St., Chicago, Ill.
(American Poultry Journal, December, 1941)

involved in social success. If one bird acts as though intimidated by the appearance of an apparently unfrightened individual, it may give way without fighting. If both act as though frightened, the one that recovers more rapidly wins.

Other things being equal, the stronger bird usually wins. Mature hens dominate immature chickens. A tired, ill, or severely molting bird may lose, although it was otherwise normally aggressive. Birds high in the peck-order of their flocks usually are more successful in these initial pair-contacts than the inferior birds. The hens fight better in their home pens or in the presence of others of their flocks. Within the same breed, hens with the larger combs have the better chance of dominating the situation.

### Effect of Hormones

Since comb size is influenced by the male sex hormone in the blood, and hens normally produce some of this substance, and since hens are less aggressive than cocks, and capons than normal roosters, a relationship is suggested between aggressiveness and the male sex hormone. Accordingly, testosterone propionate, the male sex hormone, was injected into low-ranking hens. Each so treated rose in social status and one of these eventually occupied the top position in each flock so tested.

These treated hens showed more aggressiveness, their combs increased in size, egg-laying was retarded or suppressed, crowing was initiated, and in three hens some courtship occurred. When the injections ceased, these changes vanished, but the higher social position was retained, probably due to memory and social inertia.

When one observes small flocks of chickens for long and continuous periods, he becomes impressed by the individuality of the members of the flock; he may quite readily recognize the individuals by physical and behavioristic differences. These individual differences have also become apparent in the data recorded. Some birds peck harder and more readily than others; some do not react strongly when pecked; while others may show degrees of frustration in the presence of certain of their superiors.

### Known by Their Combs

Antipathies and tolerations are relatively common between some individuals within the flock. These peculiarities are not necessarily related to the position in the peck-order of the individuals concerned. That the flockmates recognize each other is obvious, and the indications are that head-furnishings play a major role in recognition. When combs were removed surgically from hens, they were attacked as strangers when returned to their pens the second day after the operation. Controls isolated for the same period of time as dubbed birds were not attacked when returned to the flock.

When roosters with a known peck-order were placed singly into a pen of hens whose social order was determined, it was found that the frequency of their matings had no relation to their social position, nor were the hens treaded in accordance with their social levels. But when several cocks were left in the relatively small pens of the hens, psychological castration took place. The rooster at the top of the male peck-order would suppress his inferiors sexually by preventing their matings.

### Inferior Males Not Tolerated

This male interaction may be so intense that inferior cocks are not tolerated on the floor of the pen. After some weeks, the inferior cocks learned to ignore the hens of their flock, although they would tread readily when tested singly with hens of another flock.

There is a daily rhythm of sex behavior. The cocks do more courting during the morning and more treading during the late afternoon. In courting, the rooster may merely raise his hackles while extending his head toward the hen, or he may dance in an arc around the hen, lowering and fluttering one wing. If the mate crouches, he may tread; if she darts off, he may direct his attention to another female. There was some indication that the most successful breeding cock usually waits for the hen to squat before mating.

### Too Bad for Inferior Ones

A hen at the top of her social organization has the free run of the pen and exercises her domination at feeding time. Inferior birds wait their turn to feed, unless they happen to be tolerated by the superior. A very non-aggressive hen may not feed until all her superiors have gone to the roost or busy themselves elsewhere in the pen. A hard-pecked bird may spend much times on perches or in neutral areas; she avoids superiors in a pronounced manner when they approach. The same remarks may hold for the roosters, but in addition to feeding-rights, the dominant cocks also have treading-rights.

The reader may find interesting implications in such observations according to his particular interests, whether they be biological, socialogical, pyschological, or whether they apply to the practical problem of poultry husbandry.

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AMERICANS in England had to pay 85 cents a pound for their Thanksgiving turkeys. This was the price set for drawn turkeys by the Food Ministry, according to a newspaper dispatch.

# Tests in Poultry Feedstuffs

**By H. J. ALMQUIST**
University of California

*Reprinted from Nulaid News*

SOME years ago the writer reported the results of chick tests on certain feedstuffs of an uncommon nature which had been advocated or used for poultry feeding. The practice of testing such unusual products has been steadily continued. These tests serve to provide indications of comparative feeding values which may lead to the economical employment of a by-product of another industry. Frequently, the tests indicate that the product in question is not suitable for poultry feeding and should be given little further consideration. On the other hand, such tests may cast light on the feasibility of expanding the production and use of some relatively new and untried product.

### Vegetable Protein Concentrates

The value of soybean meal in poultry feeding needs no further demonstration. It was felt necessary, however, to determine the extent to which soybean meal protein could be employed to replace our high-grade western fish meals. The results of a series of tests at different protein levels showed that soybean meal at 5 per cent of the ration caused no decrease in efficiency of gain or of total gain. At 10 per cent, a decrease was slight but perceptible, while at 15 per cent (complete replacement of sardine protein), the decrease was quite large. In subsequent tests at the 7.5 per cent level, soybean meal exerted only a very slight decrease in gain and efficiency of gain. This decrease was less at higher levels of total protein, as might be expected. In fact, 9 and 10 per cent of soybean meal were utilized very well at 19 per cent of total crude protein in the ration.

### Test Soybean Meals

In two comparative tests, a solvent-process soybean meal yielded slightly better results than an expeller-process soybean meal. It is felt that 7.5 per cent of soybean meal can be employed in the usual 18 to 20 per cent crude protein chick rearing ration in replacement of sardine meal, unit for unit of protein, without significant decrease in efficiency or rate of gain. If these are not major objectives, 10 per cent soybean meal can be used. The protein of soybean meal is not of as high nutritive value for chicks as that of good-grade sardine meal, but it was found equivalent or superior to that of meat scraps and certain other fish meals.

Comparative tests of a similar nature to the above with two samples of peanut meal indicated that both were definitely inferior to the soybean meal. A single sample of sunflower seed meal was tested and proved to be fully equivalent to the soybean meals.

### Animal Protein Concentrates

Tuna fish meals appeared somewhat inferior to the sardine meals, but distinctly better than meat scrap when compared in a protein quality test ration at equivalent total protein levels.

The press water from fish meal manufacture carries some crude protein and is frequently left in the fish meal or separately dried and later blended with the meal. Tests on the protein value of this product, commonly called "stick," revealed a distinctly inferior grade of protein. Blending the dried "stick" with the sardine meal resulted in a mixture of lower value than that of the original meal.

Samples of shark meal gave only mediocre to fair results. One sample of high fat content was not improved by extraction of the fat. The chicks appeared somewhat reluctant to eat the diets containing shark meal. The use of shark meal in place of sardine meal lowered the efficiency of gain as much as 33 per cent in some trials. In a similar test, blood meal yielded poor results even in combination with sardine meal.

### Peas and Beans

Pigeon peas have been repeatedly tested. A 20 per cent level in the ration seemed too high, causing a decrease in rate and efficiency of gain. The pigeon peas were well utilized at levels up to 10 per cent of the ration. Similar results were obtained with cull lima beans. Attempts to enhance the feeding values of these products by cooking at 15 pounds steam pressure for 20 minutes resulted in slight or no improvement. Whether cooked or raw, neither pigeon peas nor cull lima beans proved fully equivalent to yellow corn in direct substitution.

### Other Feedstuffs

Kelp meal in three experiments reduced the efficiency of gain without other adverse effect, probably through an inert nature of this product in the chick diet.

Carrot meal made from whole carrots, or from the roosts only, was of equal value to whole grains at levels of 5 per cent. A slight reduction in efficiency was noted at 10 per cent whole carrots or carrot roots in the total ration.

Producers Company, Ltd., 840 Battery St., San Francisco, Calif.
(Nulaid News, November, 1941)

# A Streamlined, Auto-Sexed Goose

By JOSEPH P. QUINN
U. S. Department of Agriculture

*Condensed from Cackle and Crow*

MUCH time and thought have been given to the development of auto-sexed varieties of chickens during the past 10 years, but it seems even more essential to be able to distinguish the sex of geese. Inability to recognize the sexes often puts the amateur goose keeper in somewhat of a quandary.

## Sexes Hard to Identify

Recently a nearby resident lost one of a pair of geese which he had been keeping as pets for his children. He wanted to replace the dead bird, but could not identify its sex, nor the sex of the survivor. It is claimed, of course, that sexes in adult geese may be distinguished by general appearance, by voice, or by physical examination. However, mistakes are frequent and costly, because of the striking similarity of the sexes in body size, color, and type.

Many geese raisers have given up in despair because they were never certain of retaining the proper proportion of males and females for breeding purposes. Even experts find it difficult to tell the sex of immature geese. The only reliable answer to these sex perplexities seems to be an auto-sexed goose.

Auto-sexed geese are not new. The common geese of England and France were sexually dimorphic, but these early geese had little else to recommend them. They laid few eggs, their annual production ranging from 8 to 12 eggs. It was not surprising, therefore, that the pioneer goose breeders of this country gradually discarded the primitive, sexually dimorphic geese for larger, more productive stock.

One of the most serious shortcomings of these later breeds, however, was the major difficulty of distinguishing the sexes. The remedy for this uncertainty was the revival and improvement of the old-fashioned goose.

## Named "Pilgrim"

As it was believed that sexually dimorphic geese were the earliest known domestic geese kept in the United States, the name "Pilgrim" was given them, and the breed-promoting organization was known as the Society of the Pilgrim Goose, of which Pliny Riggs, White Plains, N. Y., is secretary.

Although the number of Pilgrim goose breeders is small at present, they are seriously attempting to improve the low egg production in this variety. From actual records that appear authentic, it seems possible to develop strains of these geese that may average 60 to 70 eggs, or more, in a season. Authentic records show one Pilgrim goose from a strain developed for more eggs for some years by Oscar Grow, Secretary of the American Waterfowl Association, and owned by Paul Ives, that actually produced 126 eggs in her first year.

## Original Blood Now Scarce

New England goose breeders say that these old-fashioned geese are now relatively scarce in that section of the country and that the progenitors of most of the New England flocks were from the earliest New England stock, said to be descended from the original Pilgrim importation.

Dr. C. D. Gordon of the Bureau of Animal Industry, however, states that sexually dimorphic geese are quite numerous in many parts of the South, and that these geese are a common sight on the truck and cotton farms of Alabama, half of the flock being white, the other half gray.

## Pilgrims' Sex Plain at Hatching

When Dr. Gordon was a member of the poultry staff at the Alabama Polytechnic Institute a few years ago, he made observations on some of these geese at the college and found that the sexes could be determined accurately at hatching time, as well as at later stages of development. He also observed that the adult gander had a blue eye and the adult goose a hazel one. These geese averaged about 10 pounds in weight, which seemed to be suitable for an ideal market goose. He believes that a small goose of superior economic qualities would be much more popular on the farm and in the holiday menu of the modern housewife.

This view is shared by other authorities. One of them, the late John H. Robinson, has pointed out that it is contrary to the general principles of American poultry standard-making to establish weights that exceed requirements for utility purposes. He believed that the mammoth show birds found in two of the most popular breeds of geese did not represent the most useful type nor the most desirable size of the domestic goose.

## Heavy Geese Not Most Profitable

Weights greatly in excess of market requirements are described by him as being detrimental to the popularity of the breeds in question as well as to the "Extension of interest in goose raising along generally profitable lines."

According to George D. Quigley of the University of Maryland an informal survey among Baltimore marketmen revealed a pronounced preference for a smaller goose.

Kent Island geese, quoted at 22 to 24 cents per pound on the Baltimore market last fall, are considerably smaller than the Toulouse, and are pure white in color. These geese are raised very economically on the fresh and salt water marshes of the eastern shore of Maryland.

### Geese Efficient Meat Producers

Other observers have pronounced the goose an efficient meat producer. Dr. Franz Lehman, a German scientist, has recently published the results of investigations on the efficiency of young pigs and various species of fowls in the production of meat. Among these, geese proved to be the most efficient producers of flesh and fat up to 8 weeks of age.

The approximate amount of feed required to produce 1 pound of live weight was 2½ pounds for geese, almost 3 pounds for swine, and slightly more than 3 pounds for ducks and chickens. In the case of the fowls, these weights did not include the weights of the feathers.

These results agree, in general, with those published in the Maryland university handbook of poultry, in which the goose, when fed grain throughout the growing period, is shown to be as economical a producer of meat as the turkey up to 12 weeks of age, when 1 pound of total weight is produced by 3 pounds of feed. In common with other classes of fowls, of course, the efficiency of feed utilization decreases as the birds advance in age.

## *Chain Stores Broaden Turkey Sales*

Production of turkeys has doubled since 1935, and the average weight of turkeys has slightly increased. Serious and difficult marketing problems have resulted. Food chains have conducted an almost continuous program of turkey merchandising, including special campaigns during holiday seasons, special sales at other seasons to encourage year-around use of turkeys, price differentials on weights to encourage consumption of larger turkeys, as well as surveys of consumer demand and dissemination of information to the turkey industry. Progress in developing longer season consumptive demand for turkeys is indicated by out-of-storage movement during February and March, which for the 5-year average (1936-40) was 7,754 thousand pounds; 1940 — 11,759 thousand pounds; 1941 — 18,360 thousand pounds.

—From the booklet, "An Economic Landmark," issued by the National Association of Food Chains.

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# POULTRY RESEARCH

### Breeding for Resistance to Neoplasms

Mortality from all causes in pullets between 160 and 500 days of a line of White Leghorns bred for resistance to neoplasms (lymphomatosis, leucosis, etc.) was reduced from 64 per cent in the original population to 38 per cent in the fourth selected generation by F. B. Hutt, R. K. Cole, and J. H. Bruckner of the Cornell University poultry department, they report in Poultry Science (Vol. 20, No. 6).

Mortality in a line selected for susceptibility to disease was maintained at a higher figure, being 61 per cent in the fourth generation.

In the four years, birds that died in the resistant line lived significantly longer than birds of the susceptible line that died. While mortality was being reduced and resistance to neoplasms increased, the body size, capacity to lay, and size of egg were markedly increased in the resistant line.

### Hexamita Meleagridis Infection in Chicks

The chicken must be considered a potential carrier of Hexamita meleagridis, conclude E. McNeil and W. R. Hinshaw of the University of California in the Cornell Veterinarian for October, 1941. The investigators found that the parasite persisted in the bursa of Fabricus and cecal tonsils of chicks for at least 22 weeks, that normal chicks placed in a brooder with infected poults acquired the infection, and that normal poults placed in a brooder with infected chicks likewise acquired the infection.

### Pullorum Disease, Production, and Weight

Pullorum-positive birds produce significantly less eggs that non-reactors and make greater gains in weight during the laying period than non-reactors, report L. G. Nicholson and E. C. McCulloch of the Washington Agricultural Experiment Station in Veterinary Medicine for January, 1942.

### Encephalomyelitis of Poultry

Outbreaks of encephalomyelitis in chickens, similar to sleeping sickness in horses, in a number of leading poultry producing states are reported by the American Foundation for Animal Health in Veterinary Medicine for January, 1942.

"The disease as it affects poultry is indicated by inability to stand, and sometimes a trembling of the head and neck. Although research is still in the preliminary stage, the disease is believed by some authorities to be egg-borne," says the foundation report.

### Ruptured Yolks Hereditary

Ruptured yolks are responsible for an appreciable share of adult mortality. The cause of the trouble is not understood at the present time. Microbial organisms do not seem to be the primary causative agents. Selective breeding studies at the New Hampshire Experiment Station indicate that "ruptured yolks run in the family" and that consequently the trouble can be attacked by the genetic approach. (New Hampshire Bulletin 330). Similar observations have been made by this reviewer, who found that systematic breeding from long-lived families resulted not only in a progressive decrease in total mortality, but also in a decrease in the occurrence of ruptured yolks.

—Carl H. Schroeder, Everybodys Poultry Magazine, January, 1942.

### Colored Lights and Walls and Chick Growth

Chicks in pens with low light intensity grew just as rapidly, with as little mortality, as chicks in pens with high light intensity, once they learned to eat, report John C. Hammond and Harry W. Titus of the U. S. Department of Agriculture's Beltsville Experimental Farm in Poultry Science (Vol. 20, No. 6).

Chicks in black-painted pens had excessive mortality in some tests, but the mortality was due to failure to learn to eat rather than lack of light. In a general way, results of these tests indicate that colors of high reflectivity are most favorable to growth. Chicks in pens with extremely high light intensity were retarded in growth, however, probably because of the excessive quantity of radiant heat.

Neither color or intensity of light to which pullets are subjected up to 16 weeks affects subsequent live weight, egg production, fertility, or hatchability.

### Factors Influencing Fertility

Fertility and the factors influencing it constitute a virtually unexplored phase of poultry production. Much has been learned about hatchability, but as regards fertility, there is a singular lack of information.

One of the few attempts to explore this problem has been made by J. S. Parker and B. J. McSpadden of the Tennessee Agricultural Experiment Station. They report that individual males vary greatly in amount of sperm they produce and the capacity of the sperm to fertilize the egg. This latter capacity was greater during the spring months than in summer or fall. The number of sperm cells produced decreased from March to October.

Strangely, a vitamin A deficient diet produced a larger number of sperm cells for about four months, but after 6 to 10 months, the impairing effect on sperm production became apparent. This reviewer finds it difficult to conceive that a vitamin A deficiency could have an initial, stimulating effect. Before indulging in any speculations on this point, it would be well to await further confirmatory evidence. The authors made the also expected observation that cutting down on the feed supply reduced sperm production in a comparatively short time, says the report in the proceedings of the Association of Southern Agricultural Workers, 1941.

—Carl H. Schroeder, Everybodys Poultry Magazine, January, 1942.

### Boning, Curing, Smoking and Cooking Turkey Meat

By combining boning, curing, smoking, and cooking of turkey meat, J. A. Davidson, P. J. Schaible, and Ray Piller of the Michigan Agricultural Experiment Station were able to produce a precooked smoked turkey roll that is believed to offer a means of utilizing surplus larger turkeys, with a price not beyond the range of competitive lines, report the investigators in the Michigan Quarterly Bulletin (Vol. 23, No. 4).

### Cafeteria Feeding of Leghorn Pullets

Fed a standard growing and laying mash, plus free choice of scratch grains, two lots of White Leghorn pullets showed satisfactory growth and production at the New Jersey Agricultural Experiment Station, report C. S. Platt and Vincent Darago in Hints to Poultrymen, October-November, 1941.

The mash consisted of 250 pounds yellow corn meal, 200 pounds wheat bran, 200 pounds feeding oatmeal, 100 pounds flour wheat middlings, 100 pounds meat scrap (55 per cent protein), 100 pounds white fish meal (55 per cent protein), 25 pounds calcite flour, 20 pounds natural cod liver oil, and 5 pounds salt.

During the growing period, pullets on range were given free access to whole oats in a separate hopper, and were allowed to eat all they wanted of a mixture of cracked corn and wheat (equal parts) between 4 p.m. and 8 a.m. The corn and wheat hopper was closed during the day. Grit was supplied on range, but oyster shell was not fed until the birds went into permanent laying quarters.

At 26 weeks, the pullets were placed in laying houses, whole corn was substituted for the cracked corn-wheat mixture, and they were allowed free choice of corn, oats, and mash throughout the remainder of the test period.

Production averaged 176.0 eggs in 1939 and 177.2 eggs in 1940, on a basis of pullets housed in the fall. Mortality was 20.8 per cent in 1939, and 16.8 per cent in 1940, also calculated on a bird-housed basis, with no culling.

Artificial lights were used to provide 15 hours of light daily, being started when the flocks reached 60 per cent production.

On the average, a dozen eggs were produced with a consumption of 1.5 pounds whole corn, 2.2 pounds oats, and 1.5 pounds mash. No report is available as to the effect of such a feeding system upon older birds, especially if their eggs are to be saved for hatching. No tests were carried out on breeds other than White Leghorns.

## Rations and Methods of Feeding Layers

Results of tests with White Leghorn and Rhode Island Red hens on six methods of feeding are discussed in the U. S. Egg and Poultry Magazine for November, 1941, by D. C. Kennard and V. D. Chamberlin of the Ohio Agricultural Experiment Station. The original review was carried in Poultry Science (Vol. 20, No. 4).

Tests were made of the following feeding systems.

1. Free choice of whole corn, whole oats, and 22 per cent protein laying mash.
2. Same as 1, with free choice of whole grain restricted to 2 hours (2:00 to 4:00 p.m.) daily.
3. Free choice of whole corn, whole oats, and 32 per cent protein mash supplement.
4. Same as 3, with free choice of whole grain restricted to 2 hours (2:00 to 4:00 p.m.) daily.
5. Same as 2, but supplemented with dried skimmilk.
6. Whole oats-mash mixture (20 pounds oats and 80 pounds mash), only, before the birds at all times.

Only group 6 was given a fixed ration, all others being given a fixed mash mixture and access to whole corn and oats with which to balance their ration.

Rhode Island Red pullets failed to consume enough mash under feeding system 1, pullets on plan 2 consuming 10 per cent more mash and laying 40 per cent more eggs. The Leghorns, however, consumed a sufficient amount of mash for profitable production under system 1, with feed cost per dozen eggs being higher and actual production less on plan 2.

In both breeds, pullets being fed according to system 3 consumed enough mash for profitable egg production. Group 4, however, showed no advantages over group 3, either for Leghorns or Rhode Island Reds.

Although egg production was relatively high in pullets fed dried skimmilk (group 5), the extra cost was not justified in either test.

In both breeds, greatest returns from eggs over cost of feed per bird was shown in group 6. Production was high and feed cost low, both per bird and per dozen eggs.

There was more feather picking in groups 1 and 2 than in the other groups, less under systems 3 and 4, and little or none in groups 5 and 6.

### Egg Production, Feed Consumption and Costs

(Leghorns, November 23, 1938, to September 13, 1939, 42 weeks)

| Group number | Egg production Per cent | Egg production Per bird | Pounds of feed consumed Per bird | Pounds of feed consumed Per dozen eggs | Cost of feed Per weight 100 lbs. | Cost of feed Per bird | Cost of feed Per dozen eggs | Returns from eggs* over cost of feed per bird |
|---|---|---|---|---|---|---|---|---|
| | | | | | (Dollars) | | (Cents) | (Dollars) |
| 1 ....... | 53.7 | **158** | 64.5 | 4.90 | 1.97 | 1.27 | 9.65 | 1.89 |
| 2 ....... | 52.3 | **154** | 65.4 | 5.10 | 2.02 | 1.32 | 10.30 | 1.76 |
| 3 ....... | 51.7 | **152** | 62.2 | 4.91 | 2.06 | 1.28 | 10.11 | 1.76 |
| 4 ....... | 52.0 | **153** | 67.0 | 5.25 | 2.16 | 1.43 | 11.34 | 1.63 |
| 5 ....... | 55.6 | **164** | 68.7 | 5.02 | 2.15 | 1.48 | 10.79 | 1.80 |
| 6 ....... | 58.8 | **173** | 71.2 | 4.94 | 1.95 | 1.39 | 9.63 | 2.07 |
| | | | | 5.02 | 2.02 | | 10.30 | 1.82 $1.1 |
| (Rhode Island Reds, November 2, 1939, to September 4, 1940, 44 weeks) | | | | | | | | |
| 1 ....... | 35.06 | **108** | 75.14 | 8.35 | 1.72 | 1.29 | 14.33 | 0.87 |
| 2 ....... | 49.35 | **152** | 78.59 | 6.20 | 2.14 | 1.68 | 13.09 | 1.36 |
| 3 ....... | 44.61 | **137** | 74.11 | 6.47 | 1.81 | 1.34 | 11.73 | 1.40 |
| 4 ....... | 40.26 | **124** | 72.92 | 7.06 | 1.91 | 1.39 | 13.46 | 1.09 |
| 5 ....... | **45.78** | **141** | 83.44 | 7.10 | 1.99 | 1.66 | 14.13 | 1.16 |
| 6 ....... | **46.43** | **149** | 72.84 | 5.86 | 1.95 | 1.42 | 11.43 | 1.56 $1.2 |
| | | | | 6.84 | 1.92 | | 13.03 | |

*At 24 cents a dozen.

## The Hen's Efficiency

A recent evaluation of the chicken's efficiency in converting feed into food shows that this species is much more efficient than it formerly was believed to be. From the standpoint of our national "food-for-defense" program this fact is highly significant.

Forty years ago, W. H. Jordan of the New York (Geneva) Experiment Station estimated the relative efficiencies of different farm animals. In order to have comparable figures, he expressed the weight of edible solids produced as per cent of the weight of digestible organic matter consumed. Some of his figures were: the cow, in producing milk, 18 per cent; the hog, in producing meat, 15.6 per cent; and the chicken, in producing eggs, only 5.1 per cent.

Many of the subsequent writers on animal production accepted Jordan's estimates and classed the chicken as relatively inefficient. However, in 1938, S. Brody of the Missouri Experiment Station concluded from the results of a comprehensive study that Jordan's estimate of the efficiency of the hen in producing eggs was much too low. This conclusion was confirmed recently by two British scientists, I. Leitch and W. Godden, who examined most of the modern data on the feed cost of producing eggs, milk, and meat.

The work of these two scientists has provided new comparative figures on the efficiencies of farm animals, and these figures are much more favorable to the hen than were Jordan's estimates. Their figure for a cow that produces 600 gallons of milk per year is essentially the same as Jordan's for the average cow, but for the high producing cow it is much larger. They obtained for the hog a figure that is almost identical with Jordan's. However, for the hen they found an efficiency of 14.3 per cent, which is slightly more than 2.8 times Jordan's estimate of 5.1 per cent.

Jordan was a careful investigator and it is likely that his estimates were valid for his time. But better strains of farm animals and more efficient feeding practices have been developed since then. This is especially true in the case of the chicken, because egg production has been increased considerably by selective breeding and progeny testing, and knowledge of the nutritive requirements of the chicken has increased greatly.

However, the whole story is not told by comparing the weights of edible solids that the different species of animals produce from a given weight of digestible organic matter. Some species produce food protein more efficiently than others and some produce food fat more efficiently. For this reason some of Leitch and Godden's other findings are of interest. They found that a cow that produces 6 gallons of milk per day is more efficient in all respects than any of the other farm animals.

Even at a production level of 4 gallons of milk per day, the cow is superior, except in fat production, in which it is excelled by the pig. In protein production, the hen that lays an egg a day equals the cow. In producing meat, the pig was found to be more efficient than the steer, but the chicken was found to produce protein more efficiently and fat less efficiently than either the pig or the steer.

Thus, so far as the production of food protein is concerned, the laying hen compares favorably with the milking cow, and the broiler and fryer are superior to the pig and the steer. In the production of food fat, the growing chicken is inferior to the cow, the pig, and the steer. But there appears to be no significant difference between the efficiencies of production of fat beef and fat poultry.

—Harry W. Titus in Feedstuffs, Nov. 22, 1941.

# *Vent Gleet*

So called vent gleet appears as a whitish, chalk-like accumulation just below the vent, and gives off a strong, foul odor. The accumulation is kept moist by discharge from the vent. The skin below the vent is reddened, thickened, and sometimes ulcerated.

This disease is often described as an infectious venereal disease of fowls, spread by the rooster at mating. So far as the writer knows, the only scientific work in this field shows the disease to be noninfectious. In the absence of positive proof, we are permitted to theorize as to its cause and nature.

The material resembles excretions from the kidneys (urates), which normally form the white caps of the droppings. If some disturbance of the kidneys causes them to produce an unusually large amount of urates, not all may be excreted with the droppings. If these urates are discharged separately, the material contacts an area of skin, the size of which depends upon the amount discharged.

Another theory is that, in hens, at least, more shell material may be produced than is needed for egg production, and this excess drains from the vent. Or, when egg production suddenly ceases, if the shell glands continue to function, this calcium or lime deposit would cause an inflammation of the skin, and also produce an odor.

Obviously, it is good practice to remove affected individuals from a flock, but this writer never has seen more than a few scattered cases. None of his attempts to spread the disease by adding healthy pullets, hens, or cockerels to such birds has resulted in new cases. Treatment is seldom practical; however, one investigator reports that 3 or 4 applications of a 3 per cent solution of chromic acid resulted in a cure in a majority of cases.

Pathological studies of the kidneys, uterus, and discharges of such birds should help to disclose the true nature of this disease.

Turkeys have not been reported affected with this so called vent gleet.

—Cliff D. Carpenter, American Poultry Journal, November, 1941.

¶¶ A MAN IN PITTSBURGH is lining up big egg carton makers so he can sell commercial advertising on cartons in terms of circulation that sound like the national debt. His plan has already gone so far he is offering advertisers an exposure or circulation of between 300 and 400 million a year and he is getting cash money for what the poultrymen themselves have been throwing away ever since fresh egg deliveries graduated from the paper bag to the neat printed carton.

—Leavitt C. Parsons, New England Poultryman, Nov. 15, 1941.

# Diary of a Poultryman

By PERCY S. WHITE

Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**Jan. 1**—I hope I am starting the new year out right, for I have a feeling that I haven't ended the old year in any too good shape. What I want to know is, and I quote:

"If I did make any money what has become of it?"

I tried to arrive at a conclusion to this puzzling question during my January 1 silent hour of meditation today, but didn't seem to be able to arrive at a satisfactory solution.

**Jan. 2**—There was a flood of mail today. It was worse than that; it was a regular tidal wave. Everybody must want to get last year's accounts settled. Some letters contained checks for goods I have sold, but most of them contained statements for goods I bought last month. The latter was in the majority—just about ten to one.

**Jan. 3**—The old residenters hereabouts reckon time by the midwinter thaw, but I reckon it as to when the bottom drops entirely out of the egg market. And that time is approaching . . . rapidly. If I am reading between the lines of the market reports correctly, I think I had better have my pant legs cut for high water. It is the old squeeze game for chicken folks, and I have felt the pressure before. A bitter dose, says I, but I have to take the bitter with the sweet and try to laugh it off . . . if I can.

**Jan. 6** — This chicken business is hard on one's feet, if I do say so myself. I have finally gotten rid of a bad corn. The sole almost fell off of my right shoe, and when I nailed it on again it was necessary to pinch in the upper part of the shoe. This pinched the foot, with the usual result. I couldn't very well go barefooted, so the next best thing was to get shoes that were really large enough. I looked like two needles stuck in pumpkin seed, but I am now rid of the corn. Trying to wear last year's rubbers over large shoes split the rubbers. I will see if I can get them vulcanized tomorrow when I go to town.

**Jan. 7**—I am afraid egg prices are shot for this year. The bottom is apparently dropping entirely out of all grades. Only time will tell when it is reached. Ralph Treat was disturbed about it when I talked to him this morning.

Everybodys Poultry Magazine Publishing Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, January, 1942)

**Jan. 8**—Fred Houser, the neighborhood stand-by, came over today to give us a hand in hauling shavings. One of the local plants in town has a supply on hand, so we are trying to make hay while the sun shines. There is nothing like having lots of dry bedding on hand in the winter.

Shavings are great to put in the manure carriers to prevent the droppings from sticking to the bottom. We also use them on the dropping boards after cleaning. It is easier to clean the boards the next time. Harold and Fred did the hauling, and I took care of the stock. Regardless of what is going on, there is always some one at home to take care of the stock.

**Jan. 10**—I have arrived at the conclusion that production is slumping. There was a shortage of a couple of cases this morning. But evidently I am not alone, for the auction volume was down a trifle yesterday. This weather evidently has something to do with it.

There is much sickness, mostly flu, in this area. Donnie came home from school yesterday not feeling very well. He has been in the house all day, and will probably be in until Monday. If humans get under the weather, why not livestock also? From the way some of these birds look, I don't think they feel very well. Come to think of it, I am not feeling very well myself.

**Jan. 11**—The regular work was all that was done today, and Harold and I thought we were not going to get that done. I hadn't realized quite how much work Donnie really did do on Saturdays. When he gathers the eggs and helps with the feeding, it gives Harold and me time to do other work.

**Jan. 13** — Blue Monday, that is what they call it, and I guess it is a good name. Donnie went to school today, but Nancy Jane is in bed, and it looks as if she is going to be there for several days. Kid White has a slight touch of flu also. Last night when I went out to see if everything was hunky-dory, it was. That is, everything but the time clock. It was either froze up or had gone on W. P. A.; anyway, it wouldn't even start to work.

I had the choice of either staying up for the rest of the night or going to bed for three hours. I chucked the furnace, put on my house slippers, and prepared to sweat it out. I served one of my famous midnight lunches, from soup to nuts. Hot vegetable soup, coffee, limburger cheese, and peanuts. The lights were turned on at the regular time, but I feel as if I have the flu, or something.

**Jan. 15**—The block house pits are now clean. This west end was harder to clean than the east. I suppose I should build a road to the west end of the house, but it would only be used about four times a year, and road ballast costs money. It would take too many dozens of eggs to build such a road.

**Jan. 16** — Fred Bates, manager of the local electric company, has extended the invitation to make a talk at their personnel meeting next Monday night. My subject is "Rural Electrification." That is a fine subject for a chicken man to discuss, especially me. All I know about electricity is that it has a wallop if I touch the wrong thing.

**Jan. 17** — Goldie, my 500 pound butter fat a year cow, is sick. Dr. Hook was out to see her this morning and pronounced it a case of flu. I guess high producing cows are like hens; it doesn't take very much to throw them off production. A bird or cow in heavy production is working hard and, like humans, is susceptible to almost any thing that comes along. If Goldie doesn't get over this, we are going to be short of milk and butter for quite some time. I am hoping for the best, but it looks like I am hoping against hope.

**Jan. 18** — Donnie moved the time clock down in the basement, right close to the furnace. He extended the wires to it, and now the clock will turn on the lights at 4 o'clock from a warm place. I guess it must have been too cold for it in the garage. Anyway, it was too risky to have it stopping at all hours of the night. If I would take it in the house, give it a good shaking and set it on the hot air register it would run to a fare-ye-well.

Goldie has been moved to the workshop in the storage building. She will be warm there, for we are keeping a fire in the stove. If she is not going to get well, she might as well die in comfort.

**Jan. 20**—I am not going to get my work done at all this winter if I continue to accept speaking engagements. Ralph Treat phoned out today and said I was wanted down at Millersburg on February 3 to talk about that elusive thing, interior egg quality. Extension Poultryman Ferguson will be there also. Then I promised D. H. Scott over at Dalton that I would talk to the group of grown-ups in the agricultural class at the high school on the twenty-ninth. And Tom Landes in the bank has invited me to attend Farmer's Day at the Rotary on the twenty-seventh. Farmer's Week at Columbus is the last week of the month. But tonight I am going to meet my Waterloo at the personnel meeting of the local electric company. I don't even know what is a watt.

**Jan. 21**—The electric men are good sports. They listened to all my nonsensical hilarity about potentates, utility magnates, corporation lawyers, Biblical quotations, rates, and recommendations as if they had never heard of it before. Mrs. Stratton, their own home demonstration good will ambassadoress, served hot roast pork sandwiches, coffee, and chocolate. Kid White was presented with a box of candy, and the Old Man with a carton of coffin nails.

**Jan. 22**—Dr. Hook was out to see Goldie. He doesn't like the way she is recuperating, if she is at all. We are doing all we can for her, so if we lose her we will have a clear conscience. When a bird falls by the wayside it doesn't mean much, but when one of the cows gets sick, it is just like one of the family.

I am going to sell an accumulation of double, blood spot, and cracked eggs on the auction. It is easy for them to pile up in the egg room, so easy to put off until tomorrow what ought to be done today. I should have taken them today . . . well, there it is. Friday they go, and there is to be no defalcation about it.

**Jan. 23**—I saw a louse on a bird today. It salves my finer sensibilities to say a louse instead of a flock of lice. I spent all afternoon scraping and steel brushing the perches in the barn. At $10.75 a gallon for louse poison, I want all the perches clean, for every drop costs money. It seems odd to apply the ingredient to the perch in order to kill the louse on the bird, but it works. At least it always has in the past.

**Jan. 24** — It is an annual event, Ralph Treat's supper for the auction employees. The Smithville Inn, famous hereabouts for its chicken dinners, was selected for the rendezvous. I was invited to go along as the after dinner speaker. The roads are in bad shape tonight, snow and ice, so I took three of the girls in the car with me. Just felt safer if the Old Man was driving.

Everything was lovely, and the chickens hung high until we got back to town. Then the girls ditched me, flew the coop, so to speak, and tore off to a movie. Guess they didn't want an old fellow around who was dragging one foot through the grave. But what amused me was the fact that they didn't know that I felt as if I did have both feet in the grave.

This louse killing job, roosting on a perch all afternoon, stooping, squatting, squinting, scraping, brushing, painting, makes the strong feel weak, and the weak feel exhausted. I have inhaled enough fumes to kill as many lice as there are dollars in the national debt.

**Jan. 27** — This gadding about has got to stop. I don't think I had better go down to Farmer's Week, but must stay at home and get something done. It is a cinch I didn't get much accomplished today. I got back from Rotary at 2:30 and did the feeding while Harold creosoted range hoppers and water stands. That is the pick-up job for the time being. It takes the creosote a long time to dry, so we like to get the painting done in plenty of time.

**Jan. 28**—Snow, all kinds of snow, and we have paths cut everywhere we want or expect to go. It is my idea of ideal winter weather, just a little below freezing and plenty of snow. The stock seems to like this kind of weather also. The birds are active, especially the pullets, which is a good sign. Increased activity should mean increased productivity.

**Jan. 29**—Well, I have just returned from Dalton. There were about 40 in attendance, and I thought this a fair number for such a night. The main highways are in good shape, but the side roads are rather dangerous for fast driving. And who drives slow except me?

**Jan. 31**—It has been a rather successful month. Cold weather has knocked production down, and although it is not back to where it was at the beginning, it has definitely improved from the low point. Egg prices fell to such an extent that it looked as if the bottom had gone entirely out. But they have gained about 4 cents, and the market tone is stronger. Goldie walked down through the valley of the shadows but she, too, is on the up grade. She is eating like a house afire, and milking around 3 gallons a day. Her milk record for the year is shot, but I do have her, and that means a lot. Yes, the new year hasn't been so bad . . . so far.

## *Fresh Meat for Poultry*

Poultry experts at the Wisconsin Experiment Station have found that fresh meat can be fed to laying flocks during the winter months with excellent results. The meat may consist of rabbits, muskrats caught for their fur, calves too poor to raise, worn-out horses, or any farm animal that has died from accident, injury, of any other cause except one of the communicable diseases.

Care must be taken, however, that the meat does not spoil. The animal should be dressed as though it were to be used for food and, if the animal is large, it should be quartered and hung in a shed where it will freeze and stay frozen until ready to be fed to flocks.

The best way to feed such material is to cut off a piece and run it through a bone grinder, grinding up just enough each time for immediate use. This will cut the frozen meat and bone to the correct size for best results and will make unnecessary the practice of hanging pieces of meat in the poultry house where they may decompose before being consumed. Investigators highly recommend fresh bone that has been ground, stating that it will pay well for the trouble of grinding.

It is recommended that the meat scraps form from one-fifth to one-sixth of the mash by weight when hens are fed grain and mash, unless some other form of high-protein feed is used.

—Bert Reichert, Successful Farming, October, 1941.

## *Ten Steps Toward Quality*

Posted in packing plants and buying stations where producers can't miss it is this practical 10-point program to control disease on Iowa farms and improve the quality of Iowa poultry. It was drawn up by the state Poultry Sanitation and Disease Control Commission.

1. Raise chicks apart from old flocks and on clean range.
2. Cull out unprofitable birds each season of the year; more often if flock appears to be unhealthy.
3. Rotate laying flock on two large enclosed and cultivated yards, or provide a sunporch. Keep hens off wet ground.
4. House and yard old hens apart from pullets, and produce chicks from select birds. Many farmers eliminate much avian tuberculosis and some other diseases by selling old birds at end of first laying season.
5. Test breeding flocks for pullorum and tuberculosis.
6. Reject and destroy birds not fit for human consumption.
7. Consult your local hatcheryman about poultry problems and have unhealthy birds posted without delay by a competent local veterinarian.
8. Sell poultry on a uniform quality grade and weight classification.
9. Handle market birds only in clean, well-ventilated coops.
10. Protect trucks and coops of poultry from severe weather while enroute to market.

Don't buy remedies from strangers!

—U. S. Egg and Poultry Magazine, January, 1942.

IF EVERY person in the United States ate one egg each day, poultrymen of the nation would have to increase their production of this protective food by about 30 per cent.

—North Carolina State College News Service.

# VIEWS OF THE EDITORS

## A Look Ahead

War always brings with it a host of troubles, and this war is no exception. Countless dislocations attend changes from natural peace production and use of things to necessary war production and use. Many of our industries must shift their production, or their products must be diverted to other than normal uses. Diversion of labor and materials also, and there will be other changes that even men of long vision cannot now foresee. Agriculture cannot escape the difficulties which attend such changes. It faces already shortage of labor and machinery and certain essential materials. It may face the troubles that always accompany attempts to control production, movement, uses, and prices of agricultural commodities.

What to do about all these problems and difficulties, many more than those mentioned here? We must try to realize the needs of our country and the problems of those reponsible for its safety and its success, then try so to adjust ourselves and our work that we may continue to serve in adequate production. If we face policies or practices that are not good for the country, are more likely to retard than promote its cause, or that are unfair to agriculture, we should not hesitate to protest in the right spirit. That is the spirit of patience, of patriotism, of appreciation of the good intent of others, even in what we may regard as serious errors. Such considerate and constructive comment is the privilege and even the duty of good Americans at any time.

—Pennsylvania Farmer, Jan. 3, 1942.

## Changing Farm Practices

With skilled farm labor scarce and relatively high-priced, many jobs will have to be handled differently this year. Practices that have been time-tested must be thrown overboard for the duration of Defense effort. Before deciding to use a material or practice in preference to another, the probable labor consequences will have to be weighed carefully.

—Kirk Fox in Successful Farming, January, 1942.

## Cashing in on Hungry Mouths

One way of getting our country universally disliked is for the agricultural press to go on explaining that our farmers are about to cash in on the hungry people of foreign countries.

An agricultural monthly, for example, is telling farmers that "when the fighting stops, hundreds of millions of hungry mouths of Europe, Asia, and Africa will need every smidgeon of food our acres can produce."

Besides being an unkind implication, dangerous, wishful and perhaps not true, it is a repetition of the sort of advice farmers heard in 1920. The reasoning is faulty, because no war ever increased the ability to buy. Granted that American farmers may cash in for a season or two on "hungry mouths," what kind of money are they going to accept? Will it be Japanese muslin, Argentine corn, French lace, German chemicals, or Italian spaghetti? A great deal of the gold is here, now.

The paper quoted is urging farmers to fight for "economic justice," not for subsidies nor the wise planning other enterprises do to sustain prosperity and lasting security. The fact that the land is man's only means of staying on earth, and that man is wanting to have something to say about how his only source of existence is being handled, is not detected as a reason that farm production is coming under the regulatory functions of government. Little do the councils of farming seem to realize the depths of the big problems they attempt to settle with a swish of the hand.

The result of these swishes is farming as we have known it through all the years of American history—a vocation so unwisely coached that it begs for help today and asserts its independence tomorrow, depending upon whether the times are good or bad. Just now, with the prospect of hungry mouths to feed in the countries at war, independent action on every acre is urged. No aid wanted is the theme. The aid asked from every Congress since George Washington is not wanted just now, at least not by this prominent spokesman.

Moreover, American farmers have been led to forget that the United States is but a strip across the North American continent, beyond which there is a lot of world, and a lot of intelligent and cultured people to reckon with. It would be a tragedy of the first rank for our country, if the present upheaval leads to nothing more than the hope of more selling to the "hungry mouths" of other populations.

—Journal of the American Veterinary Medical Association, November, 1941.

## Consumers Do the Buying

Too many poultry producers fail to sense the value to them of quality grading in increasing the consumption of eggs. A producer is apt to forget that the consuming public regulates the demand and determines the prices at which he can sell, and today an egg is not "just an egg" to them.

The intelligent producer realizes the importance of selling on a quality grade basis to distributors as concerned as he is in building consumer satisfaction and who, in turn, sell to progressive retailers, who stimulate egg sales by operating on a small margin and so secure a more rapid turnover.

Satisfaction promotes increased consumer use and strengthens demand. As demand strengthens, prices strengthen. Yes, the consumer is king, and it pays the producer to strive for his favor.

—Nulaid News, December, 1941.

### Maintain Bird Size

For the past dozen or more years poultry packers have said that the general run of farm poultry was not as good as it was 20 or 30 years ago. Poultry does not make the "once-made" feeding station gains. Poultry going to the packing room does not show the old-time body conformation. There is not enough meat on the bones.

Where there is a general complaint there must be cause. As an industry we know more about poultry breeding, poultry feeding, poultry care, and sanitary and disease control measures than we did 30 years ago. We cannot therefore blame it on the incubator and present methods of brooding, or on the feed or the care, for this apparent poor quality. Necessarily it must then be a problem in breeding — in the character of the foundation stock.

Farm poultry, in the main, which finds its way into the poultry plant is generally one of the American breeds — the Plymouth Rock, the Rhode Island Red, the New Hampshire, or the Wyandotte and the English Orpington. What phase of breeding could be at fault?

We think it is the failure to maintain the Standard size of birds in the breeding flocks. There has been a marked tendency to breed for earlier and earlier maturity in the birds. Breeders cannot consistently do this to get more eggs and not reduce the size of the individual breeding birds. The bird sizes as specified in the American Standard of Perfection evidently have been looked upon as super "ideal" and only occasionally to be approached rather than considered as industry breeding standards.

Fortunate for the industry poultry size has been recognized by a few private breeder-hatcheries and some poultry-packer hatcheries. Localities serviced by these show better quality poultry for packing. Eight-pound Plymouth Rock breeding cockerels are again found in some breeding flocks. The industry needs more of this careful attention given to bird size maintenance. Poultry breeders have a constructive job ahead.

—E. B. Heaton, U. S. Egg and Poultry Magazine, December, 1941.

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# Does Artificial Heat Pay?

**By C. E. LEE**

*Condensed from American Poultry Journal*

VERY little scientific investigation of the effect of supplementary heat in the laying house has been reported from authoritative sources. Many articles in popular poultry magazines and farm papers have seemed to indicate the desirability of some supplementary heat during the colder months, at least in the northern states. However, very little conclusive evidence has been presented.

The history of the poultry industry has so many examples of erroneous conclusions resulting from insufficient data or improperly organized experiments, that it seemed to us desirable to find out the facts. Accordingly, in 1935, a series of experiments on laying hens was begun to ascertain whether or not artificial heat for layers was really profitable.

### Less Feed Used

The earlier work seemed to indicate that annual egg production both in New Hampshires and in White Leghorns was lowered by the use of supplementary heat in an insulated laying house. Whether this would be equally true in an uninsulated laying house may be open to argument, but since a house may be insulated at a lower cost, over a period of years, than it can be satisfactorily heated, it seemed obvious that for commercial practice in the northeastern states, insulation, rather than the use of artificial heat, should be recommended.

The feed consumption was reduced about 5 pounds per bird for the New Hampshires in the heated house and about 15 pounds per bird for the Leghorns.

### Heat Cuts Litter Cost

The first years of this work showed that litter cost was nearly cut in two by the use of heat and, of course, labor of changing litter was also reduced. But in later work, with different weather conditions, it was found that this saving in litter cost and labor was not uniform, and some winters there was very little difference.

With the use of coal for heat, it was necessary to consume from 25 pounds to 35 pounds of coal per bird per year to secure an average temperature of 45° in the heated pens.

The "net return per bird" was not significant with New Hampshires, as between the heated and unheated pens, during the first years of the

American Poultry Journal, 536 So. Clark St., Chicago, Ill.
(American Poultry Journal, December, 1941)

experiment, but was significantly different, in favor of the unheated pens, with the White Leghorns.

## Temperature Gets Down to 22°

The house that had no artificial heat maintained fairly satisfactory inside pen temperatures, only occasionally being recorded at below freezing at noon. On one occasion, however, the temperature was down to 25° at noon, and on several other occasions there were temperatures that were below freezing. The 7:30 a.m. reading showed, in February, as low as 22° above zero inside the house, in spite of the insulation and the heat from the birds. This 7:30 a.m. reading was taken only during a short period in February when the most intense cold of the winter was experienced.

Considering the White Leghorns, we see in the table the summary of egg production, income, expense, and net returns per bird. The birds in the unheated pens averaged 165.35 eggs per bird for the period of 10 months from October through July. The actual average income was $3.68 for the 10 months. The expenses for each type of feed, litter, and labor cost for changing litter, are shown. The return of $1.72 net per bird contrasts with the production of 149.98 eggs per bird for the 10 months in the heated house with a net of $1.30.

It should be stated that the stock used was not selected for extreme high egg production but was selected to represent typical stock such as the average poultryman might have on his farm.

This table also shows the results with R. I. Reds. Here we had a production of 176.53 eggs per bird for the 10 months in the house without heat and a net return per bird of $1.67, while the Reds that received artificial heat showed 161.69 eggs per bird wiht a net of only $1.34 per bird.

## Labor Costs Uniform

Labor cost other than that required for changing litter was not included, as this was substantially uniform for all pens heated or unheated. The same was true of the cost for artificial light.

Here again we found, as in previous years, that the use of supplementary heat in an insulated laying house under the climatic conditions of central New York State results in a lower annual egg production, a slightly lower feed consumption, occasionally a lower litter requirement, and a serious and consistent lowering of the net flock income.

Random eggs were weighed 3 days each month, during the last 4 months of the heating period in one year. The temperature used, in general below 50° did not cause a decrease in the average egg weight as compared with the birds in the pens not receiving artificial heat. The average weight per egg for the 4 months' period for the Leghorns in the unheated house was 2.088 ounces compared with 2.053 ounces in the heated house; for the Reds, the average was 2.153 ounces in the unheated house and 2.171 ounces in the heated house.

## Does This Apply to Cage Plants?

Operators of laying cage plants may raise the question as to whether artificial heat, as commonly used in such plants, is necessary or advisable. We want to emphasize that this series of experiments does not specifically answer this question. We do believe (and this has been confirmed by research work on laying cage management extending over a period of 13 years) that birds in cages, because of the fact that they get less exercise and are exposed to moving air on all sides to a much greater extent than layers on the floor in a well insulated house, do probably have a somewhat higher heat requirement.

As a matter of fact, our investigations have shown best results with hens in laying cages where a temperature of about 45° is maintained during the season when artificial heat is needed, that temperatures above 50° are likely to result in more or less periodic molting alternating with periods of very high production. In England, where the climate is much milder, excellent results are obtained without artificial heat in cage plants, but in this country, at least in the north, we have the problem of freezing water pipes to consider as well as the effect on the birds themselves; therefore we do recommend enough heat to keep the temperature about 45°, and not

Egg Production, Income, Expenses, and Net Returns per Bird

| Period 10 months | Eggs | Actual average income | Lbs. mash | Mash cost | Lbs. pellets | Pellet cost | Lbs. grain | Grain cost | Litter cost | Litter labor cost | Fuel cost | Net returns |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| White Leghorns—House 2—No Heat | | | | | | | | | | | | |
| Oct. thru July | 165.35 | $3.68 | 35.72 | 89.28¢ | 29.4 | 67.99¢ | 16.73 | 31.36¢ | 6.65¢ | 1.14¢ | | $1.72 |
| House 3—Heated | | | | | | | | | | | | |
| Oct. thru July | 149.98 | $3.30 | 35.76 | 89.67¢ | 23.16 | 60.66¢ | 16.43 | 30.16¢ | 4.16¢ | .95¢ | 13.57¢ | $1.30 |
| Rhode Island Reds—House 2—No Heat | | | | | | | | | | | | |
| Oct. thru July | 176.53 | $4.08 | 53.35 | $1.35 | 25.18 | 63.85¢ | 16.59 | 30.11¢ | 10.53¢ | 1.36¢ | | $1.67 |
| House 3—Heated | | | | | | | | | | | | |
| Oct. thru July | 161.69 | $3.70 | 48.4 | $1.23 | 26.1 | 66.21¢ | 11.43 | 21.03¢ | 10.79¢ | 1.75¢ | 13.86¢ | $1.34 |

over 50°, during the period when artificial heat is required.

### The Happy Medium

It appears that we have to strike something of a balance between the effect of heat on egg size and the necessity to conserve heat when we try to set an ideal temperature. Further, we know that a lower temperature means that the bird must consume an increased amount of feed in order to keep her body temperature up to normal. Our experience indicates that around 45° to 50° approaches the ideal, all things considered, for winter conditions where artificial heat has to be provided, or where it is possible to maintain the desired temperature by proper insulation of buildings to conserve the heat produced by the birds.

### Air Conditioning

It is obvious that it would be a great advantage to be able to air-condition the laying house in the summer so that temperatures could be held down to a lower level during periods of extreme heat. Thus far, it seems that about the only practical way to do this is by the use of highly effective insulation in the house and a good ventilation system.

Sooner or later, it is probable that air conditioning outfits will be available for poultry laying houses at prices poultrymen can afford to pay, but that time has not yet arrived, though we do have cases where cool water is available which can be circulated through units used for heating in winter and which will appreciably cool the air of the laying house in summer. These units are of the automobile radiator type with a fan mounted behind them for air circulation. Where cool spring water is available, the use of such units in laying houses and particularly in large laying cage plants seems to be entirely practical.

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## *Sunlamps for Poultry*

Sunlamps for poultry, to provide vitamin D, are on the market at a lower cost than last year. Some flock-owners who have electricity plan to use a lamp of this kind instead of vitamin D feeding oil. Cost of lamp and current for a year (two hours a day) is right close to $20. In use, the lamp is placed over the feed hopper 30 inches from the floor.

—Farm Journal, December, 1941.

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EGGS were given to the holders of programs with lucky numbers at a benefit performance given in Glasgow, Scotland, recently for the aid of the Greeks, the Baltimore Sun relates.

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# Chemical Composition of the Egg

By ETHEL M. CRUICKSHANK
Cambridge, England

*Reprinted from U. S. Egg and Poultry Magazine*

THE original jungle fowl laid only 20 to 25 eggs a year, but by selective breeding we have been able to obtain much higher levels of productivity, and hens laying 250 eggs a year are now quite common. The hen has, therefore, become a highly specialized machine for the conversion of raw materials into human foodstuffs. Her efficiency in this respect is greater than that of any other farm animal except the milk cow.

A hen laying 250 eggs a year will manufacture and pack 31 pounds of a finished product, though she herself may weigh only 4 pounds. This product will contain, in addition to vitamins and minerals, 4.1 pounds of protein and 3.3 pounds of fat, while the packing consists of about 3 pounds of calcium carbonate in the form of shell.

### Egg Size and Relative Composition

Eggs vary considerably in size, depending in a large measure on the breed of the hen, the heavier breeds tending to lay the larger eggs. An average-sized egg weighs 56 grams (approximately 2 ounces), of which the shell constitutes 11 per cent, the white 58 per cent and the yolk 31 per cent. These proportions do not vary to any great extent.

The percentage composition of the edible portion of the egg is as follows.

| | |
|---|---|
| Water: | 73.7 per cent |
| Protein: | 13.4 per cent |
| Fat: | 10.5 per cent |
| Ash: | 1.0 per cent |

### Shell

The shell contains the following constituents.

| | |
|---|---|
| Calcium carbonate: | 93.7 per cent |
| Magnesium: | 1.39 per cent |
| Phosphorus ($P_2O_5$): | 0.76 per cent |
| Organic matter: | 4.15 per cent |

The organic matter is found in the very thin cuticle which covers the egg, and is also present in the mineral portion, where it forms a matrix in which the inorganic salts are imbedded. On the inner side of the shell, and enclosing the yolk and white, are paper-like structures, the shell membranes, which consist of keratin, a protein which occurs also in the human skin.

### Shell Color

The color of the shell may vary from white to a pale coffee shade, its pigmentation being due to the presence of porphyrin, an organic

Institute of American Poultry Industries, 110 N. Franklin St., Chicago. Ill.
(The U. S. Egg and Poultry Magazine, January, 1941)

compound related to the hemoglobin of the blood.

### White

The white contains a high proportion of water, since it acts as the principal reservoir of water for the embryonic chick. Its main organic constituent is protein. Small amounts of salts are also present, along with traces of fat, and about ½ per cent of carbohydrate.

The percentage composition of the white is as follows.

| | |
|---|---|
| Water: | 87.77 per cent |
| Fat: | 0.05 per cent |
| Protein: | 10.00 per cent |
| Ash: | 0.82 per cent |

### Thick and Thin White

Individual eggs may vary considerably in the ratio of thick to thin white which they contain. At one time, this variation was attributed to the diet, but it is now established that the percentage of thick white present is characteristic of the individual hen, and is determined largely by the structure of the albumen-secreting cells of the oviduct. Besides differing in physical properties, the layers of thick and thin white differ also in chemical construction.

From the culinary point of view, the proportion of thick to thin white present is of considerable significance. For frying or poaching, an egg with a large percentage of thick white is desirable, since in this case the white, when the egg is broken out into the pan, will stand up closely around the yolk, and the egg coagulates in a small firm mass instead of spreading over the frying pan or into the poaching water. The capacity of forming a stiff froth when beaten is, however, similar to both thick and thin white. Indeed, the thin white, when beaten, produces a slightly greater volume than does the thick white, and therefore. for certain purposes, eggs with a high percentage of thin white are equal to or even better than those having much thick white.

### Yolk

The yolk differs greatly in composition from the thick white, since its purpose is to provide a supply of nutritive and building material for the developing chick. It contains much less water and more solid materials. It is also well fortified with vitamins and mineral constituents, but contains little or no carbohydrate. Fresh egg yolk has the following composition.

| | |
|---|---|
| Water: | 49.0 per cent |
| Fat: | 31.6 per cent |
| Protein: | 16.7 per cent |
| Ash: | 1.5 per cent |

### Yolk Color

The color of the yolk is variable, ranging from pale yellow to deep orange. The chief coloring matter is xanthophyll, a pigment present in yellow maize and green plants. Carotene also occurs, along with cryptoxanthin, but these two substances are present only in small amounts. The depth of color is roughly proportional to the xanthophyll content, which is regulated mainly by the nature of the bird's diet.

### Protein of White and Yolk

The egg white (or albumen) is not a single substance, but is composed of five different proteins, of which one, ovalbumin, constitutes about 70 per cent of the total. The others present are ovoglobulin, ovomucin, conalbumin, and ovomucoid.

A protein is an organic substance of complex chemical structure containing nitrogen, and each protein is composed of about 20 simpler nitrogenous compounds, the amino acids, which differ in chemical composition and nutritive function. Whereas many of these compounds can be synthesized in the animal body, in the case of others this cannot be done, and they must be supplied in the food consumed. These nutritionally essential amino acids need not be enumerated here, but all of them occur in the proteins of egg white.

### Protein Content of Yolk

The protein content of yolk is relatively high, and is composed mainly of the two proteins vitellin and levitin, the former being present in a larger amount, in the proportion of approximately 4 to 1.

Vitellin belongs to the group of proteins which contain phosphorus, the phosphoproteins, and the phosphorus which it contains forms about one-third of the total phosphorus content in the yolk.

In contrast to vitellin, levitin contains little phosphorus, but it has a relatively high percentage of sulfur, which accounts for a considerable proportion of the yolk, about half of which is present as levitin. These two proteins contain notable amounts of the amino acids cystine, tryptophane tyrosine, and lysine, a fact which is probably of significance in the nutrition of the developing chick.

### Fat Content of Yolk

All the fat of the egg, except for traces which occur in the white, is concentrated in the yolk, where it is present in the form of an emulsion. The yolk is rich in fat (ether extract), about 30 to 32 per cent being present in the fresh or 62 per cent in the dried yolk.

The fats of the yolk are of complex chemical structure and consist of two types: (1) neutral fats or glycerides and (2) phosphorized fats or lecithins.

The neutral fats are compounds containing fatty acids and glycerine, and are of the type found in beef, mutton, and other body fats.

The lecithins contain, in addition to fatty acids, both nitrogen and phosphorus. These lecithins are found in certain body tissues, such as brain, liver, and pancreas, but adispose tissue contains only insignificant amounts.

In the yolk, lecithins are present to the extent of probably 10 per cent, and the egg, therefore, is richer in this respect than most other fats occurring in the human diet.

The function of the lecithins in nutrition is not yet clearly understood, but there is reason to believe that they are of considerable importance in fat metabolism, and they are probably essential also for the normal structure and functioning of the body. In the developing chick, the phosphorus of the lecithins is utilized in the formation of bone.

### Cholesterol Content of Yolk

Another constituent of the ether extract of the yolk is cholesterol, which occurs both free and in chemical combination with the fatty acids. One egg yolk contains about 200 to 300 milligram of this compound, which is derived in part from the food, and in part from synthesis by the hen during the process of yolk formation. Its presence is of interest because of the fact that it is closely associated with vitamin D.

TABLE 1 — Mineral composition of edible portion of the egg

| | Whole Egg | Egg Yolk | Egg White |
|---|---|---|---|
| Calcium, % | 0.06 | 0.13 | 0.01 |
| Chlorine, % | 0.13 | 0.10 | 0.15 |
| Copper, p. p. m.* | 1.87 | 4.15 | 0.85 |
| Iodine, p. p. m.* | 0.1 | —— | —— |
| Iron, % | 0.0031 | 0.0086 | 0.0001 |
| Magnesium, % | 0.05 | 0.13 | 0.01 |
| Manganese, p. p. m. | 0.33 | 1.13 | —— |
| Phosphorus, % | 0.22 | 0.59 | 0.10 |
| Potassium, % | 0.14 | 0.11 | 0.16 |
| Sodium, % | 0.13 | 0.07 | 0.16 |
| Sulfur, % | 0.183 | 0.157 | 0.196 |

*parts per million

### Minerals of White and Yolk

According to Rose and Vahlteich, the more important minerals and their distribution in the egg are as shown in Table 1.

### Mineral Content of White

The amount of mineral material in the white is relatively small, sulfur being present in the greatest amount, with sodium, potassium, and chlorine next in order. The percentages of calcium, magnesium, and phosphorus are low, while copper and iron occur only in traces.

### Mineral Content of Yolk

The ash content of the yolk, which is almost double that of the white, is qualitatively complete with regard to its constituent minerals, that is, it contains all the elements necessary for the formation of the blood, bone, and soft tissues of the animal body.

Phosphorus, which accounts for a considerable proportion of the total mineral content, occurs chiefly in organic combination in the form of phosphoproteins and lecithins. Sulfur, which is less abundant in the yolk than in the white, is present entirely in organic form, about half of it, as already mentioned, being contributed by levitin. The calcium content, though approximately 10 times that found in the white, is nevertheless low, but the embryonic chick makes good this deficiency by drawing on the shell for the bulk of its calcium requirements.

### Iron Mainly in Yolk

The iron of the egg is confined almost solely to the yolk, where it is believed to be present in inorganic form, though very closely associated with the protein. The yolk, compared with other foods, is relatively rich in iron compounds, which, moreover, appear to be in a form which is easily assimilated and utilized, as they constitute the only source of iron available for the formation of the blood and tissues of the chick. Individual eggs show marked differences in iron content; values ranging from 7.7 to 17.3 milligrams per 100 grams of dried yolk have been observed in eggs from birds receiving similar rations.

The iodine and copper content varies considerably from egg to egg, but the amount present is always so low (as is the case with other foods) that it is reckoned in millionths of a gram. The copper appears to be concentrated largely in the yolk, but little is known as to the distribution of iodine between yolk and white; figures available refer usually to the iodine content of the whole egg.

The white is not a source of vitamins, except with respect to one member of the vitamin B complex. It contains neither vitamin A nor vitamin D, because these are both fat-soluble, and the white contains practically no fat. There is no vitamin C in either white or yolk, since a dietary source of this factor is apparently not required for the chick's well-being.

### Vitamin B Complex

It is now recognized that what was formerly known as vitamin B is really a mixture of several vitamins, of which only two, vitamin B-1 and riboflavin, need be mentioned here. The white of the egg is noteworthy in that it contains little or no vitamin B-1, but has a relatively high content of riboflavin, considerably more than is found in many other foods, so egg white is a valuable source of this factor.

### Vitamin Content of Yolk

**Vitamin A**—The vitamin A content of the yolk is high, but it is a variable quantity (normal values range from 200 to 800 International Units per egg) which is influenced by dietary and physiological factors. The nature of the hen's machine has a marked effect on vitamin potency, but the amount of vitamin A and vitamin A-producing substances which are deposited in the egg differs widely in different hens, even when maintained on the same ration.

The vitamin A activity of the egg

is due to the combined actions of vitamin A itself, carotene (which is transformed into vitamin A in the animal body), and cryptoxanthin. Xanthophyll, which accounts for most of the coloring matter, is not a source of the vitamin.

**Vitamin D** — Among the foods which are naturally rich sources of this vitamin, certain fish oils, such as, cod liver and halibut liver oils, head the list, but egg yolk, though far less rich, is probably the second best natural food source. One egg may contain from 10 to 50 International Units of vitamin D, the amount present depending upon the diet, and environmental conditions under which the eggs are produced.

### Vitamin B Complex

**Vitamin B-1**—This vitamin is confined to the yolk. Comparatively few estimations have been made of its content, but it probably contains from 20 to 40 International Units.

**Riboflavin**—The yolk contains a larger amount of this factor per unit weight than the white. An egg is richer in this vitamin than most other foodstuffs, with the exception of certain animal tissues, such as liver, kidneys and glandular organs.

Since the egg is an important article of the diet, and one of the most valuable of our protective foods, it is a matter of considerable interest to the consumer to ascertain in what ways and to what extent the ration and management of the hen may affect the eggs composition and nutritive properties. Recent research has shown that the egg is by no means a standard product, and that variations in its chemical composition, its vitamin content, and its hatchability may be brought about by appropriate diets.

The poultryman endeavors to secure the highest possible production of eggs of a quality which will contain the maximum amounts of essential elements and compounds needed for the development of a strong and healthy chick, while the dietician wishes to obtain eggs which will have a high value from the standpoint of human nutritional requirements. Fortunately, the system of rationing and management which will best fulfill the poultryman's purpose results also in the provision of a human foodstuff of optimum quality.

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MANY stories about bad eggs have been in circulation since the introduction of the egg scheme.

According to one of the latest, a convoy coming into Liverpool had to change course suddenly, as they ran into a floating egg area, and the stench of those broken by the ships was so great that crews were unfit to man anti-aircraft and anti-U-boat stations.

—**Modern Poultry Keeping, London, England, Nov. 12, 1941.**

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

| Geographic Division | Layers per flock Jan. 1 | Layers per flock Nov. 1 | Layers per flock Dec. 1 | Eggs per 100 layers Nov. 1 | Eggs per 100 layers Dec. 1 | Eggs per 100 layers Aggregate Jan.-Dec. | Eggs per flock Nov. 1 | Eggs per flock Dec. 1 | Eggs per flock Aggregate Jan.-Dec. |
|---|---|---|---|---|---|---|---|---|---|
| North Atl. | | | | | | | | | |
| 1930-39 (Av.) | 97.5 | 87.7 | 93.9 | 21.5 | 22.8 | 479.8 | 18.8 | 21.4 | 408.8 |
| 1940 | 97.2 | 86.8 | 92.4 | 26.2 | 30.1 | 517.9 | 22.5 | 27.6 | 433.8 |
| 1941 | 95.4 | 88.3 | 96.6 | 28.3 | 32.3 | 538.8 | 25.0 | 31.2 | 454.8 |
| E. N. Cent. | | | | | | | | | |
| 1930-39 (Av.) | 108.8 | 93.4 | 103.6 | 18.8 | 17.2 | 434.7 | 17.6 | 18.1 | 406.9 |
| 1940 | 110.8 | 99.0 | 106.9 | 24.3 | 23.6 | 469.0 | 24.2 | 25.6 | 446.5 |
| 1941 | 110.3 | 102.5 | 111.2 | 26.1 | 25.4 | 492.9 | 26.7 | 28.8 | 472.0 |
| W. N. Cent. | | | | | | | | | |
| 1930-39 (Av.) | 117.6 | 97.8 | 108.6 | 15.6 | 12.3 | 392.9 | 15.3 | 13.6 | 395.3 |
| 1940 | 118.6 | 96.9 | 109.9 | 21.4 | 13.8 | 428.1 | 20.8 | 15.4 | 438.4 |
| 1941 | 116.1 | 103.6 | 117.2 | 21.2 | 17.8 | 456.5 | 21.9 | 21.1 | 467.8 |
| South Atl. | | | | | | | | | |
| 1930-39 (Av.) | 58.6 | 52.4 | 55.4 | 21.2 | 19.5 | 418.7 | 11.2 | 10.8 | 212.5 |
| 1940 | 59.9 | 53.4 | 57.0 | 24.8 | 24.1 | 449.3 | 13.4 | 13.9 | 235.6 |
| 1941 | 59.4 | 55.3 | 59.6 | 26.0 | 24.5 | 467.5 | 14.5 | 14.7 | 240.1 |
| South Cent. | | | | | | | | | |
| 1930-39 (Av.) | 64.4 | 57.2 | 60.1 | 20.3 | 16.6 | 397.5 | 11.7 | 10.2 | 220.3 |
| 1940 | 65.8 | 56.7 | 59.2 | 23.7 | 19.0 | 415.2 | 13.6 | 11.4 | 231.4 |
| 1941 | 62.7 | 61.7 | 66.2 | 22.8 | 18.4 | 447.6 | 14.2 | 12.3 | 248.7 |
| Western | | | | | | | | | |
| 1930-39 (Av.) | 73.2 | 67.0 | 70.9 | 23.1 | 20.0 | 475.8 | 15.0 | 13.6 | 307.9 |
| 1940 | 73.7 | 64.9 | 68.7 | 27.9 | 22.4 | 499.1 | 17.1 | 14.4 | 315.3 |
| 1941 | 71.6 | 66.5 | 71.6 | 27.7 | 24.2 | 504.1 | 17.5 | 16.5 | 316.6 |
| United States | | | | | | | | | |
| 1930-39 (Av.) | 84.0 | 73.1 | 79.0 | 19.0 | 16.7 | 421.7 | 14.0 | 13.3 | 303.5 |
| 1940 | 85.1 | 73.5 | 79.4 | 23.9 | 20.2 | 452.3 | 17.6 | 16.3 | 327.8 |
| 1941 | 83.2 | 77.6 | 84.8 | 24.3 | 22.2 | 476.4 | 18.8 | 18.8 | 345.6 |

Egg production in November was a record for the month in practically all parts of the country, both in rate of lay per bird and in total production of eggs. Total production was 11 per cent larger than in November last year and 39 per cent above the 10-year (1930-39) average. More than half of this increase over a year ago was due to a higher rate of lay and the balance to an increase in the number of layers.

The aggregate egg production for the past 11 months of this year also set a new high mark, being 4 per cent above a year earlier, and 10 per cent above the 10-year average.

Egg production reached record levels for November in all parts of the country, except in the Far Western States where it was exceeded by the record production in 1937. The 10-year average production was exceeded in all areas—the increase ranging from 10 per cent in the Far West to 54 per cent in the East North Central States.

The rate of egg production per layer reached a new November high in all parts of the country except the South Central States. For the country as a whole, the rate was 6.49 eggs per layer compared with 6.17 eggs last year, and 4.97 eggs, the 10-year November average. The aggregate for the past 11 months of 134.1 eggs per layer on hand was also higher than in any previous year, exceeding the layings for these months last year by 5 per cent and the 10-year average aggregate by 10 per cent.

The heavy rate of laying has continued into December, the daily rate shown by sample farm flocks on December 1 being 10 per cent higher than a year ago, 3 per cent above the previous high December 1 rate in 1939 and 33 per cent above the 10-year December 1 average.

Farm flocks through November averaged 318,245,000 layers, the largest number for the month since 1930. This number exceeds that of last year by 5 per cent and the 10-year November average by 6 per cent. Numbers have not reached the levels established in the twenties, however. Although more eggs were produced in November than ever before, the layers are 7 per cent fewer than in 1927.

The average number of pullets not yet of laying age reported in sample farm flocks on December 1 was 24.2 birds, which is 3.8 birds above the number a year ago and greater than in any December of the previous 4 years of record. These potential layers exceed past December numbers in all parts of the country except in the North Atlantic and Far Western States where they were exceeded in 1939. Farmers are expected to save a larger-than-usual percentage of these pullets for the laying flock. On the basis of October numbers, the present reserve of pullets for the laying flock is probably about equal to the previous maximum holdings in 1929.

—Comment from U. S. D. A. Poultry and Egg Production Report.

## Receipts of Eggs and Poultry

Receipts at primary markets during recent weeks have shown unusually large increases, particularly in the Central West. Average weekly receipts of 150 cases per plant in November increased to 235 cases per plant during the first 3 weeks of December, and averaged 330 cases for the one week ending December 20. The seasonal trend, which had been upward each week since November 22, was climaxed during the week ending December 20 by a 73 per cent increase over the preceding week. While the relationships to 1940 have been increases since the middle of last May, the increases have been unusually large the past month. Terminal market receipts reflect these trends at country points. November receipts at 4 principal markets—New York, Chicago, Philadelphia and Boston—were 15 per cent below those of a year earlier, but this relationship was reversed in December when receipts were close to 20 per cent greater than a year ago.

Receipts of dressed poultry at principal markets were 14 per cent lighter in November this year than last, and December receipts followed a somewhat similar trend. December receipts included the usual heavy movement of turkeys which takes place at this time of the year. Total U. S. stocks of frozen poultry in storage on December 1 totaled 172½ million pounds compared with 159 million pounds on the same date in 1940. The into-storage movement continued after December 1, with the 35 cities weekly report being the principal indication of the change in the storage situation. In these markets, stocks increased 30 million pounds during the 4 weeks ending December 27, compared with an increase of 36 million pounds during the corresponding period of 1940. Part of the increases both years is assumed to have been turkeys.

Receipts of live poultry at central western packing plants showed seasonal decreases each week from the middle of November to the week before Christmas, and were lighter than in the same period a year earlier. These recent changes in trends probably reflect the heavier marketings of poultry for Christmas trade.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Receipts of Eggs and Poultry at Central Western Primary Markets**

| Week Ending | Cases of Eggs | | | Pounds of Poultry (000 omitted) | | | Pounds of Young Stock (000 omitted) | | | Pounds of Fowl (000 omitted) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1941 | 1940 | % Chg. | 1941 | 1940 | % Chg. | 1941 | 1940 | % Chg. | 1941 | 1940 | % Chg. |
| Dec. 6 | 37,941 | 14,000 | +171.01 | 5,673 | 5,815 | − 2.44 | 3,345 | 2,805 | +19.27 | 2,235 | 2,914 | −23.30 |
| Dec. 13 | 41,211 | 15,633 | +163.62 | 5,106 | 5,243 | − 2.61 | 3.013 | 1,780 | +69.23 | 2,019 | 2,804 | −27.97 |
| Dec. 20 | 68,931 | 18,321 | +276.24 | 5,542 | 4,343 | +27.62 | 3,002 | 2,347 | +27.90 | 2,436 | 2,464 | − 1.13 |
| Dec. 27 | 76,967 | 24,280 | +217.00 | 3.549 | 3.311 | + 7.18 | 1.600 | 1,167 | +37.14 | 1.866 | 2.054 | − 9.15 |

**Receipts of Eggs at Pacific Coast Primary Markets**

| Week Ending | No. of Plants | Cases of Eggs 1941 | Cases of Eggs 1940 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| Dec. 6 | 62 | 53,912 | 47,567 | +1.24 | +13.34 |
| Dec. 13 | 62 | 54,524 | 47,825 | +1.19 | +14.01 |
| Dec. 20 | 62 | 56,171 | 49,187 | +2.98 | +14.20 |
| Dec. 27 | 62 | 58.147 | 49.934 | +2.87 | +16.45 |

**Receipts of Eggs at Eastern Egg Auctions**

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| Dec. 6 | 23 | 31,691 | +14.42 | +20.71 |
| Dec. 13 | 28 | 44,913 | + 3.98 | +24.75 |
| Dec. 20 | 21 | 34,968 | + 4.99 | +32.64 |
| Dec. 27 | 25 | 38,165 | − 9.42 | +23.60 |

—Compiled from U. S. D. A. market reports.

### Receipts of Eggs (cases) at 4 Markets*

| Geographic Section | November 1941 | November 1940 | November % change | Jan. to Nov., Inc. 1941 | Jan. to Nov., Inc. 1940 | Jan. to Nov., Inc. % change |
|---|---|---|---|---|---|---|
| New England | 44,743 | 32,487 | +37.73 | 498,005 | 413,422 | +20.46 |
| Middle Atlantic | 134,485 | 123,601 | + 8.81 | 2,015,037 | 1,924,167 | + 4.72 |
| South Atlantic | 7,362 | 8,582 | –14.22 | 202,783 | 240,260 | –15.60 |
| East North Central | 112,935 | 121,404 | – 6.98 | 2,847,681 | 2,820,070 | + 0.98 |
| West North Central | 149,542 | 183,691 | –18.59 | 6,463,728 | 7,217,141 | –10.44 |
| South Central | 21 | 1,132 | –98.14 | 74,385 | 76,563 | – 2.84 |
| Mountain | 26,928 | 58,338 | –53.84 | 352,838 | 379,126 | – 6.93 |
| Pacific | 39,554 | 77,130 | –48.72 | 210,949 | 486,416 | –56.63 |
| Miscellaneous | 241 | 268 | –10.07 | 3,536 | 4,744 | –25.46 |
| TOTAL | 515,811 | 606,633 | –14.97 | 12,668,942 | 13,561,909 | – 6.58 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic Section | November 1941 | November 1940 | November % change | Jan. to Nov., Inc. 1941 | Jan. to Nov., Inc. 1940 | Jan. to Nov., Inc. % change |
|---|---|---|---|---|---|---|
| New England | 1,174,883 | 1,438,849 | –18.35 | 11,860,272 | 14,607,626 | –18.81 |
| Middle Atlantic | 2,092,755 | 2,394,831 | –12.61 | 52,150,601 | 45,904,360 | +13.61 |
| South Atlantic | 4,121,534 | 3,917,347 | + 5.21 | 39,879,824 | 26,778,784 | +48.92 |
| East North Central | 5,695,036 | 6,817,056 | –16.46 | 34,160,907 | 38,127,461 | –10.40 |
| West North Central | 50,139,036 | 56,246,767 | –10.86 | 179,351,855 | 197,855,657 | – 9.35 |
| South Central | 4,629,680 | 8,594,692 | –46.13 | 20,225,269 | 22,823,089 | –11.38 |
| Mountain | 5,953,736 | 5,073,371 | +17.35 | 9,963,605 | 8,909,624 | +11.83 |
| Pacific | 1,141,623 | 2,625,505 | –56.52 | 10,636,402 | 13,633,848 | –21.99 |
| Miscellaneous | 0 | 0 | – | 0 | 128,680 | 0 |
| TOTAL | 74,948,283 | 87,108,418 | –13.96 | 358,228,735 | 368,769,129 | – 2.86 |

* New York, Chicago, Philadelphia and Boston.

## Egg-Feed Ratios

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1941 | 1940 | 10-Yr. Avg. 1931-40 | Price of Fresh Graded Firsts (Dollars) 1941 | 1940 | Cost of Ration per 100 lbs. (Dollars) 1941 | 1940 |
|---|---|---|---|---|---|---|---|
| Dec. 6 | 4.47 | 4.30 | 4.46 | .342 | .290 | 1.533 | 1.247 |
| Dec. 13 | 4.59 | 4.75 | 4.70 | .350 | .257 | 1.612 | 1.224 |
| Dec. 20 | 4.70 | 4.75 | 4.90 | .345 | .253 | 1.623 | 1.203 |
| Dec. 27 | 4.87 | 5.52 | 4.92 | .335 | .221 | 1.632 | 1.221 |

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1941 | 1940 | 1939 | Avg. Egg Price per Doz. (Dollars) 1941 | 1940 | 1939 | Avg. Feed Cost per 100 lbs. (Dollars) 1941 | 1940 | 1939 |
|---|---|---|---|---|---|---|---|---|---|
| December 4 | 6.5 | 6.4 | 8.2 | .357 | .307 | .232 | 2.32 | 1.97 | 1.96 |
| December 11 | 6.5 | 6.8 | 9.0 | .370 | .284 | .218 | 2.40 | 1.93 | 1.96 |
| December 18 | 7.0 | 7.1 | 9.0 | .358 | .271 | .225 | 2.40 | 1.92 | 2.02 |
| December 24 | 7.0 | 7.2 | 8.9 | .345 | .275 | .226 | 2.40 | 1.97 | 2.02 |
| December 31 | 7.0 | 7.5 | 9.2 | .348 | .260 | .222 | 2.41 | 1.96 | 2.04 |

—Compiled by N. Y. State Department of Agriculture and Markets.

### Central California Egg-Feed Ratio

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1941 | 1940 | 1939 | 1938 | 1937 | 1936 |
|---|---|---|---|---|---|---|
| November | 5.37 | 5.17 | 6.03 | 4.20 | 5.11 | 5.57 |
| Jan.-Nov. | 6.78 | 8.07 | 7.08 | 6.70 | 8.47 | 7.09 |
| Year | | 7.87 | 7.17 | 6.50 | 8.27 | 7.07 |

—Data Compiled by Edwin C. Voorhies, University of California.

## Egg Prices

The December egg market was featured by several striking developments. The weak tone which had prevailed at the close of November was evident during the early part of the month, but with the declaration of war markets became firm and prices advanced. Even at this time, however, there was a nervous undertone, for while there was some feeling that an upward swing might occur, there also was the knowledge that receipts were increasing rapidly and that under normal conditions no such course would be in prospect. Sentiment soon crystallized, and by the middle of the month prices were definitely started in the direction of the sharp break which later occurred. During the 10 days immediately preceding Christmas, Fresh Firsts at New York dropped 3½ to 4 cents, with top grades of nearby and Pacific Coast eggs going off 6 to 7 cents. Other eastern and mid-western markets shared to varying degrees in the decline. On the Pacific Coast, the price tendency during the month was not uniform. However, with the exception of Seattle, where there was a sharp break immediately after Christmas, prices at the close of the month were higher than on December 1—the reverse of the eastern markets' trend. On the basis of a general comparison, December prices this year averaged about 8 cents higher than last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### 1941 Egg Prices at New York City

| Kind | Dec. 5 | Dec. 12 | Dec. 19 | Dec. 26 | Dec. 26 '40 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 34¾-35 | 37½-38 | 34 | 34 | 25 |
| Nearby and Midwestern White Premium Marks | 37-38½ | 44-45½ | 38-39½ | 37¼-38¾ | 28½-30 |
| Nearby and Midwestern White Exchange Specials | 36½ | 43½ | 37½ | 36¾ | 28 |
| Pacific Coast Specials | 38¾-39¼ | 44¾-45¼ | 40¾-41¼ | 38½-39 | 30½-31 |
| Nearby and Midwestern Brown Specials | 38 | 41-41½ | 36¾-37 | 35¼ | 27½-28 |

### Mid-Month Farm Price of Chicken per Pound

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. 1930-39 | 14.0 | 14.2 | 14.4 | 15.0 | 14.7 | 14.4 | 14.1 | 14.0 | 14.3 | 13.7 | 13.3 | 12.9 |
| 1940 | 12.0 | 12.2 | 12.8 | 12.9 | 13.6 | 13.3 | 13.6 | 13.4 | 13.7 | 13.3 | 13.1 | 13.0 |
| 1941 | 13.7 | 14.0 | 14.4 | 15.7 | 16.3 | 16.3 | 16.8 | 16.3 | 16.3 | 16.0 | 15.5 | |

## Government Purchases

Purchases of Eggs and Poultry Products by the U. S. D. A.

| Week Ending | Shell Eggs | Frozen Eggs | Dried Eggs | Canned Chicken | Canned Turkey |
|---|---|---|---|---|---|
| | Cases | 1,000 lbs. | 1,000 lbs. | 1,000 lbs. | 1,000 lbs. |
| December 6 | 11,124 | ——— | 684 | 340 | 140 |
| December 13 | 4,148 | ——— | 2,553 | 294 | 640 |
| December 20 | 10,349 | ——— | 2,807 | 209 | 70 |
| December 27 | 24,337 | ——— | 3,239 | 750 | 340 |
| Jan. 1 to Dec. 27 | 1,732,958 | 66,190 | 44,613 | 4,619 | 1,190 |

With large supplies coming in, price reactions were to be expected, unless support was forthcoming from some other angle. In this case, support did develop in the form of Government buying. Purchases of shell eggs have been made regularly by the Federal Surplus Commodities Corporation under the direct offer and acceptance plan, but after the December break in egg prices, that agency began buying on the Mercantile Exchanges at New York and Chicago. Relatively small quantities were taken, but this evidence of interest in the turn of egg prices served to give markets support, with the result that the decline was checked. Total F. S. C. C. purchases in December approximated 72,000 cases, the bulk of which were bought after the middle of the month.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Eggs in Storage

Storage Holdings of Eggs

| Kind | Dec. 1 5-Yr. Avg. 1936-40 | Dec. 1 1940 | Nov. 1 1941 | Dec. 1 1941 | % Change Dec. '40-Dec. '41 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| Shell Eggs (cases) | | | | | |
| SMA and FSCC | | 545 | 586 | 392 | |
| Commercial | | 1,424 | 3,271 | 1,265 | |
| Total | 1,883 | 1,969 | 3,857 | 1,657 | –15.9 |
| Frozen Eggs (lbs.) | | | | | |
| SMA and FSCC | | | 27,321 | 26,163 | |
| Commercial | | | 126,522 | 103,736 | |
| Total | 88,881 | 91,273 | 153,843 | 129,899 | +42.3 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 2,539 | 2,608 | 4,396 | 3,711 | +42.3 |
| Total (cases) | 4.422 | 4.577 | 8.253 | 5.368 | +12.9 |

*Frozen eggs are converted on the basis of 35 pounds to the case.

Stocks of shell eggs in cold storage are relatively low. On December 1 holdings were 1,657,000 cases, 86 per cent of which were in the 35 cities reported weekly. Reduction in the 35 cities from December 1 to December 27 was approximately 860,000 cases, leaving only 576,000 cases on hand in those markets on the latter date. This was a 60 per cent reduction during the month.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Poultry Meat Prices

The tone of December live poultry markets was firm, and prices advanced generally in eastern and mid-western markets. In many cases, the changes were sharp increases, as compared with those which have been occurring during monthly periods. Heavy hens at Chicago went from 18½ cents to 22 cents, and lighter weights, which were as low as 14½ cents early in the month, also went up to 22 cents at the close of the month. Fancy fowl at New York sold at around 26 to 27 cents toward the close of the month, compared with 22 cents on December 1. Advances on broilers in most cases were not as great as on fowl. The improved tone of poultry markets reflected the broadened demand which existed at a time when supplies were not overly plentiful. Holiday trading was, of course, a supporting influence during the month.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Mid-Month Farm Price of Eggs per Dozen

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. 1930-39 | 22.8 | 18.8 | 16.1 | 16.0 | 15.9 | 15.7 | 17.0 | 18.7 | 21.9 | 24.7 | 28.2 | 26.3 |
| 1940 | 18.3 | 20.2 | 15.4 | 15.0 | 15.1 | 14.4 | 16.4 | 17.2 | 21.0 | 23.7 | 26.2 | 26.8 |
| 1941 | 19.7 | 16.8 | 16.4 | 19.7 | 20.1 | 23.2 | 25.6 | 26.8 | 30.3 | 31.8 | 35.5 | |

## Poultry in Storage

Storage Holdings of Poultry

| Kind | Dec. 1 5-Yr. Avg. 1936-40 | Dec. 1 1940 | Nov. 1 1941 | Dec. 1 1941 | % Change Dec. '40-Dec. '41 |
|---|---|---|---|---|---|
| | | Thousand Pounds | | | |
| Broilers | 13,962 | 10,729 | 13,387 | 14,164 | +32.0 |
| Fryers | 12,885 | 12,690 | 13,983 | 17,557 | +38.3 |
| Roasters | 25,707 | 27.473 | 24,853 | 38,083 | +42.2 |
| Fowls | 24,594 | 33,816 | 29,592 | 37,494 | +10.8 |
| Turkeys | 22,930 | 31,888 | 8,245 | 20,779 | –34.6 |
| Ducks | 7,946 | 9,322 | 11,088 | 9,426 | + 1.1 |
| Miscellaneous | 24,571 | 18,773 | 15,073 | 19,237 | + 2.4 |
| Unclassified | | 14,419 | 11,760 | 15,696 | + 8.8 |
| Total | 132.595 | 159.110 | 127.981 | 172.436 | + 8.3 |

## Hatchery Operations

Production of baby chicks by commercial hatcheries during November was maintained on a high level, the U. S. Department of Agriculture reports. Production, estimated at 21,929,000 chicks, set a new high record for that month and was 66 per cent larger than the previous record output of November last year. Most of the chicks were for commercial broiler production.

Hatcheries in the New England, South Atlantic, and South Central States, which produce most of the broiler chicks at this time of the year, accounted for 71 per cent of the total increase over November last year. On the basis of a 3-year comparison the November output of chicks this year in the New England States was 63 per cent larger than in November 1938, in the South Atlantic States 111 per cent larger, and in the South Central States 191 per cent. In actual numbers, hatchery production in these areas during November totaled 14,598,000 chicks, compared with 6,915,000 during November 1938.

The commercial production of broilers and fryers has increased greatly this year, and in view of the large production, particularly during recent months, the prices of broilers and fryers have not risen relatively as fast as grain prices. The feed-chicken ratio was less favorable on November 15 than either a year ago or the 10-year November average, and was the least favorable since November 1936. Whether or not broiler and fryer production will continue to show large increases is a question. The relatively less favorable feed-chicken ratio is generally recognized by the hatcheries now operating and while no surplus chicks have been reported, comments received indicate that they expect to operate on a conservative basis.

**Eggs Set by Commercial Hatcheries**

| Geographic Divisions | Nov. 1938 | Nov. 1939 | Nov. 1940 | Nov. 1941 | % chg. from Nov. 1940 | Jan.-Nov. Inc. 1940 | Jan.-Nov. Inc. 1941 | % chg. from 1940 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 3,671 | 3,850 | 3,754 | 8,334 | +122 | 68,139 | 93,121 | +37 |
| Middle Atlantic | 1,614 | 1,329 | 1,415 | 2,802 | + 98 | 107,391 | 122,600 | +14 |
| South Atlantic | 4,081 | 4,408 | 5,418 | 8,886 | + 64 | 104,148 | 141,336 | +36 |
| E. N. Central | 3,042 | 2,671 | 2,747 | 3,571 | + 30 | 364,761 | 440,779 | +21 |
| W. N. Central | 1,560 | 1,444 | 780 | 1,108 | + 42 | 362,495 | 479,638 | +32 |
| South Central | 2,470 | 2,938 | 3,287 | 6,212 | + 89 | 115,614 | 157,306 | +36 |
| Mountain | 77 | 84 | 47 | 133 | +183 | 23,341 | 28,591 | +22 |
| Pacific | 3,131 | 3,047 | 2,523 | 3,356 | + 33 | 68,258 | 86,582 | +27 |
| United States | 19,646 | 19,771 | 19,971 | 34,402 | + 72 | 1,214,147 | 1,549,953 | +28 |

**Chicks Hatched by Commercial Hatcheries**

| Geographic Divisions | Nov. 1938 | Nov. 1939 | Nov. 1940 | Nov. 1941 | % chg. from Nov. 1940 | Jan.-Nov. Inc. 1940 | Jan.-Nov. Inc. 1941 | % chg. from 1940 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 2,494 | 2,267 | 2,509 | 4,065 | + 62 | 47,817 | 67,217 | +41 |
| Middle Atlantic | 981 | 962 | 936 | 1,657 | + 77 | 69,157 | 81,304 | +18 |
| South Atlantic | 2,926 | 3,187 | 3,914 | 6,184 | + 58 | 74,140 | 100,665 | +36 |
| E. N. Central | 1,817 | 1,817 | 1,470 | 2,102 | + 43 | 230,297 | 282,135 | +23 |
| W. N. Central | 1,238 | 1,114 | 786 | 1,376 | + 75 | 245,001 | 310,493 | +27 |
| South Central | 1,495 | 1,818 | 1,950 | 4,349 | +123 | 80,599 | 109,463 | +36 |
| Mountain | 54 | 58 | 28 | 51 | + 83 | 14,986 | 18,838 | +26 |
| Pacific | 2,003 | 1,819 | 1,613 | 2,145 | + 33 | 46,126 | 58,338 | +26 |
| United States | 13,008 | 13,042 | 13,206 | 21,929 | + 66 | 808,123 | 1,028,453 | +27 |

A strong demand for chicks for egg production is expected. Chicks booked on December 1 for future delivery showed an increase of 65 per cent over the same date last year. Of the November hatchings for the entire country, 94 per cent were of heavy breeds and 6 per cent of light breeds, the same proportions as shown for November 1940.

—Comment from U. S. D. A. Hatchery Production Report.

**Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing**

| Geographic Divisions | Chicks booked Dec. 1 | % Light breed hatched | | % Heavy breed hatched | | Sexing |
|---|---|---|---|---|---|---|
| | % change from Dec. 1, 1940 | Nov. 1940 | Nov. 1941 | Nov. 1940 | Nov. 1941 | % change from Nov. 1940 |
| New England | + 80 | 2 | 1 | 98 | 99 | − 43 |
| Middle Atlantic | + 80 | 3 | 2 | 97 | 98 | +1,700 |
| South Atlantic | +104 | — | — | 100 | 100 | + 600 |
| E. N. Central | + 24 | 6 | 9 | 94 | 91 | + 26 |
| W. N. Central | + 36 | 11 | 17 | 89 | 83 | + 117 |
| South Central | − 10 | 4 | 9 | 96 | 91 | + 345 |
| Mountain | − 21 | 17 | 27 | 83 | 73 | — |
| Pacific | + 36 | 38 | 30 | 62 | 70 | + 109 |
| United States | + 65 | 6 | 6 | 94 | 94 | + 144 |

## Egg Breaking Operations

Liquid egg production by commercial egg breaking plants in November is estimated at 22,625,000 pounds, compared with 656,000 pounds in November last year, the U. S. Department of Agriculture reports. As was the case in October, this high production is directly related to the Government's program of obtaining large quantities of dried eggs for export. Approximately 93 per cent of the November production was dried, with reports from 13 firms that dried eggs in November showing a production of 4,269,178 pounds, compared with 28,501 pounds in November last year.

Egg breaking firms continue to use considerable quantities of storage eggs for breaking purposes. About 207,000 cases of storage eggs were broken out in November by the firms reporting drying operations. Only relatively small quantities of frozen eggs have been reported used for drying. The firms reporting stock of dried eggs on December 1 showed that out of a total of 3,605,650 pounds on hand, only 160,639 pounds remained unsold.

Production of frozen eggs has continued at a high rate of increase over that of 1940. November production was 22,600,000 pounds, compared with but 656,000 pounds a year earlier. Approximately 93 per cent of the November output was diverted to dried eggs. The F. S. C. C. has not bought frozen eggs since August. Stocks of frozen eggs in storage on December 1 totaled 130 million pounds, which was a 42 per cent increase over a year earlier. Out-of-storage movements in the 35 cities during December were more than double the December reduction in 1940.

The dried egg situation this season is of increased importance because of the active Government buying program. December purchases of dried eggs by the F. S. C. C. approximated 9¼ million pounds, bringing calendar year purchases up to approximately 44½ million pounds. This demand has served to stimulate production as evidenced by the comparison of a representative group of firms whose reported production in November this year was 4,269,000 pounds compared with but 28,500 pounds a year earlier.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Liquid Egg Production, November 1940-41**

| | | November 1940 | November 1941 | % change Nov.'40-Nov.'41 |
|---|---|---|---|---|
| | | Thousand Pounds | | |
| Whole eggs | | 345 | 20,860 | +5,946 |
| Mixed eggs (plain) | | 53 | 68 | + 26 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 72 | 90 | + 25 |
| Egg whites (all descriptions) | | 82 | 860 | + 949 |
| Egg yolks packed | Without salt, sugar, etc. | 88 | 724 | + 723 |
| | With sugar | 16 | 23 | + 44 |
| | With salt | — | — | — |
| | All yolk emulsions, including glycerine | — | — | — |
| Total | | 656 | 22,625 | +3,349 |

**Dried Egg Production, November 1940-41**

| Commodity | Total Reported November 1941 | Same Firm Comparison | | |
|---|---|---|---|---|
| | | Nov. 1940 | Nov. 1941 | Nov. '40-Nov. '41 % change |
| | Pounds | | Pounds | |
| Whole | 3,730,484 | 0 | 3,730,484 | |
| Albumen | 164,885 | 9,658 | 164,885 | + 1,607 |
| Yolks | 373,809 | 18,843 | 373,809 | + 1,884 |
| Total | 4,269,178 | 28,501 | 4,269,178 | +14,879 |
| Firms reporting | 13 | 13 | | |

# Fresh Feed is Best

One very important part, we believe, in taking care of pullets and keeping them on feed and in production is not to overfeed on either grain or mash; that is, give the birds all they will consume of good fresh mash and grain, but do not let old feed accumulate in the feeders. This will not only prevent waste, but fresh feed will encourage the consumption of mash, and the birds will always be "on their toes."

This is only one method of feeding, of course. Some poultrymen follow the practice of free choice feeding of mash and grain, but with this method the accumulation of feed in feeders should be guarded against. Additional wet mash or pellet and milk feedings and proper use of lights will help hold up production with this method also. This free choice method of feeding is very popular in some sections because of its simplicity and saving in labor, but we believe that a good feeder can get better results by hand feeding.

Some poultry raisers, particularly smaller ones, probably will feel that they cannot give as much time and attention to their chickens as this outline calls for. That well may be, but it does not alter the fact that such flocks probably would be more profitable if given closer attention, within reason.

—Poultry Tribune, November, 1941.

¶¶ A DUCK, lured from a pond in Queens County, New York, by corn sprinkled on the shore, amazed its captors by displaying four legs, two normal ones and two smaller ones growing out from under the wings. The captors were representatives of the American Society for the Prevention of Cruelty to Animals, who had been summoned by an observer who thought the two legs floating on the surface were broken.

—Feedstuffs, Nov. 22, 1941.

¶¶ ALLERGIC TO POULTRY, Freeman Waldo Cook, staff member of the poultry department at North Carolina State College since 1932, has just resigned his position on the advice of his physician, to go into some other work. Handling chickens causes him to break out in a rash resembling acute eczema.

—Farm Journal, December, 1941.

¶¶ HAVE you ever heard of the philosopher's egg? It was a medieval preservative against poison and a cure for the plague. The shell of a new-laid egg was pricked, the contents blown out, and the shell then filled with saffron or with the yolk of an egg mixed with saffron.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, October, 1941.

# RESULTS OF LAYING TESTS

After 61 days, the 15, 873 pullets entered in the 17 standard laying tests have laid an average of 33.88 eggs for 32.31 points. This is about two eggs and two points above the December 1 figure a year ago.

Mortality is slightly below that of last year (1.27 per cent this year, 1.59 per cent in 1940), and egg weight is up about one-fourth ounce per dozen.

Production of high individuals and pens is lagging behind that of a year ago, with the competition exceptionally keen.

Henry Rapp's White Leghorns at Hunterdon, N. J., went into the lead during November, topping the Kauder Pedigreed Leghorn pen at Pennsylvania by 4 points. J. J. Warren's Rhode Island Red pen at Storrs dropped to third place nationally, but continues as a strong competitor, as does W. H. Wilson's fourth place pen of Rhode Island Reds at Georgia, which is just 7.30 points from the top.

George Vowell's pace-setting Leghorn at Arizona died of egg trouble during the month, with an E. B. Parmenter Rhode Island Red at Passaic, N. J., taking over the top individual position.

Arizona still holds the lead in test competition, but less than 4 points separate the first from the sixth test, Pennsylvania, and it's still very much of an open race for test honors.

## Twenty High Pens, All Breeds, to Dec. 1—(61 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Rapp's Poultry Farm | White Leghorn | 685 | 700.60 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 671 | 696.95 | Georgia |
| J. J. Warren | Rhode Island Red | 692 | 694.80 | Storrs |
| W. H. Wilson | Rhode Island Red | 673 | 694.25 | Georgia |
| Holser's Valley Farm | White Leghorn | 679 | 693.30 | Storrs |
| Harco Orchards | Rhode Island Red | 665 | 692.20 | Storrs |
| W. H. Wilson | Rhode Island Red | 708 | 691.30 | Georgia |
| Howard Woodward | White Leghorn | 675 | 686.70 | Hunterdon, N. J. |
| J. J. Warren | Rhode Island Red | 692 | 686.35 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 646 | 675.35 | Pennsylvania |
| Bagby Poultry Farm | Rhode Island Red | 653 | 673.05 | Arizona |
| Kauder's Pedigreed Leghorns | White Leghorn | 668 | 671.65 | Storrs |
| J. A. Hanson | White Leghorn | 676 | 669.55 | Georgia |
| E. B. Parmenter | Rhode Island Red | 688 | 668.55 | Passaic, N. J. |
| Ralph W. Anderson | Rhode Island Red | 632 | 667.40 | Rhode Island |
| E. B. Parmenter | Rhode Island Red | 676 | 667.25 | Storrs |
| C. C. Hersey | Rhode Island Red | 691 | 664.10 | Storrs |
| Rapp's Poultry Farm | White Leghorn | 661 | 664.00 | Hunterdon, N. J. |
| Crescent Farms | White Leghorn | 625 | 662.95 | Florida |
| Joachim Breeding Farm | New Hampshire | 654 | 661.60 | Storrs |

## High Pen in Each Test to Dec. 1—(61 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Rapp's Poultry Farm | White Leghorn | 685 | 700.60 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 671 | 696.95 | Georgia |
| J. J. Warren | Rhode Island Red | 692 | 694.80 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 646 | 675.35 | Pennsylvania |
| Bagby Poultry Farm | Rhode Island Red | 653 | 673.05 | Arizona |
| E. B. Parmenter | Rhode Island Red | 688 | 668.55 | Passaic, N. J. |
| Ralph W. Anderson | Rhode Island Red | 632 | 667.40 | Rhode Island |
| Crescent Farms | White Leghorn | 625 | 662.95 | Florida |
| Foreman Poultry Farm | White Leghorn | 623 | 639.25 | Missouri |
| Jack O'Harrow | White Leghorn | 663 | 637.25 | Texas |
| J. J. Warren | Rhode Island Red | 630 | 635.25 | California |
| J. J. Warren | Rhode Island Red | 623 | 633.95 | Maine |
| J. A. Hanson | White Leghorn | 632 | 618.10 | Western New York |
| J. J. Warren | Rhode Island Red | 624 | 618.00 | Long Island |
| Bodine's Pedigreed Leghorns | White Leghorn | 621 | 608.85 | Central New York |
| Foreman Poultry Farm | White Leghorn | 662 | 598.90 | Oklahoma |
| J. J. Warren | Rhode Island Red | 556 | 541.35 | Michigan |

## High Pen in Each Breed to Dec. 1—(61 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Rapp's Poultry Farm | White Leghorn | 685 | 700.60 | Hunterdon, N. J. |
| J. J. Warren | Rhode Island Red | 692 | 694.80 | Storrs |
| Joachim Breeding Farm | New Hampshire | 654 | 661.60 | Storrs |
| J. W. Schaible | Barred Rock | 700 | 635.05 | Hunterdon, N. J. |
| Harvey E. Taylor | White Wyandotte | 590 | 581.55 | Texas |
| Riley Poultry Farm | White Rock | 616 | 579.70 | Storrs |
| Ernest Pedigo | Australorp | 474 | 479.90 | Arizona |
| Raymond S. Thomas | Ancona | 498 | 477.60 | Pennsylvania |
| Dryden Poultry Breeding Farm | Cross | 475 | 447.25 | California |
| Harry Phillips | Columbian Rock | 352 | 361.90 | Missouri |
| Miami Hatchery | Buff Rock | 360 | 336.05 | Michigan |
| Imperial Breeding Farm | White Giant | 343 | 333.45 | Maine |
| Horne's Hatchery | Black Minorca | 316 | 331.70 | Texas |
| T. D. Brown | White Minorca | 291 | 296.85 | Texas |
| C. A. Richardson | Buff Leghorn | 314 | 264.90 | Hunterdon, N. J. |
| Henry F. Waitt | Buff Minorca | 260 | 230.15 | Maine |
| Wellington Wells | Silver Laced Wyandotte | 236 | 196.30 | Maine |
| Iowa Master Breeders | Buff Orpington | 158 | 134.75 | Texas |
| Imperial Poultry Breed. Fm. | New Hamp. White | 105 | 107.55 | Missouri |
| Philip Maddux | Black Leghorn | 116 | 94.65 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 41 | 36.80 | Florida |

## High Pen in Each Test for November

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Holser's Valley Farm | White Leghorn | 362 | 380.20 | Storrs |
| Harco Orchards | Rhode Island Red | 355 | 377.35 | Rhode Island |
| Rap's Poultry Farm | White Leghorn | 358 | 372.85 | Hunterdon, N. J. |
| W. H. Wilson | Rhode Island Red | 362 | 366.00 | Georgia |
| Bagby Poultry Farm | Rhode Island Red | 339 | 359.40 | Arizona |
| Sand Springs Home Farm | White Leghorn | 320 | 343.20 | Texas |
| E. B. Parmenter | Rhode Island Red | 340 | 337.30 | Passaic, N. J. |
| Globus Poultry Farm | Rhode Island Red | 347 | 336.25 | Maine |
| G. B. Treadwell | Rhode Island Red | 331 | 333.70 | Long Island |
| Kauder's Pedigreed Leghorns | White Leghorn | 310 | 332.40 | Pennsylvania |
| Hillview Poultry Farm | Rhode Island Red | 328 | 331.65 | California |
| Crescent Farms | White Leghorn | 304 | 326.45 | Florida |
| J. A. Hanson | White Leghorn | 318 | 319.85 | Western New York |
| Holser's Valley Farm | White Leghorn | 297 | 314.80 | Central New York |
| Riley Poultry Farm | Barred Rock | 314 | 309.85 | Oklahoma |
| Foreman Poultry Farm | White Leghorn | 279 | 290.30 | Missouri |
| W. C. Eckard | White Leghorn | 286 | 277.90 | Michigan |

## High Hen in Each Breed to Dec. 1–(61 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| E. B. Parmenter | Rhode Island Red | 60 | 64.90 | Passaic, N. J. |
| Dryden Poultry Breeding Farm | Barred Rock | 59 | 63.20 | Storrs |
| Rapp's Poultry Farm | White Leghorn | 60 | 62.85 | Hunterdon, N. J. |
| Ebenwood Farm | New Hampshire | 58 | 60.20 | Rhode Island |
| Paul Hansen | Australorp | 55 | 57.00 | California |
| Drumm Egg Farm | White Rock | 53 | 55.65 | Georgia |
| Harvey E. Taylor | White Wyandotte | 53 | 53.45 | Texas |
| Dryden Poultry Breeding Farm | Cross | 52 | 50.10 | California |
| Imperial Breeding Farm | White Giant | 48 | 49.30 | Maine |
| Harry Phillips | Columbian Rock | 48 | 48.95 | Missouri |
| Raymond S. Thomas | Ancona | 44 | 47.90 | Pennsylvania |
| T. D. Brown | White Minorca | 45 | 44.55 | Texas |
| H. F. Waitt | Buff Minorca | 46 | 43.50 | Maine |
| Imperial Breeding Farm | New Hamp. White | 38 | 39.65 | Missouri |
| Horne's Hatchery | Black Minorca | 36 | 39.30 | Texas |
| Miami Hatchery | Buff Rock | 37 | 37.95 | Michigan |
| Donald C. Chandler | Silver Laced Wyandotte | 38 | 35.20 | Maine |
| Chas. A. Richardson | Buff Leghorn | 37 | 33.75 | Hunterdon, N. J. |
| F. G. Romance | Partridge Plymouth Rock | 34 | 30.90 | Florida |
| Iowa Master Breeders | Buff Orpington | 28 | 26.90 | Texas |
| Philip Maddux | Black Leghorn | 28 | 22.40 | Long Island |

## High Hen in Each Test to Dec. 1–(61 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| E. B. Parmenter | Rhode Island Red | 60 | 64.90 | Passaic, N. J. |
| Harco Orchards | Rhode Island Red | 58 | 63.60 | Maine |
| E. B. Parmenter | Rhode Island Red | 58 | 63.50 | California |
| Rapp's Poultry Farm | White Leghorn | 60 | 62.85 | Hunterdon, N. J. |
| Harco Orchards | Rhode Island Red | 58 | 62.65 | Storrs |
| J. A. Hanson | White Leghorn | 58 | 62.60 | Georgia |
| Booth Farms and Hatchery | White Leghorn | 59 | 62.40 | Western New York |
| Bagby Poultry Farm | Rhode Island Red | 57 | 61.80 | Arizona |
| J. J. Warren | Rhode Island Red | 59 | 61.20 | Michigan |
| Baker Poultry Farm | White Leghorn | 59 | 61.10 | Central New York |
| Rinker Poultry Farm | White Leghorn | 58 | 61.05 | Pennsylvania |
| J. J. Warren | Rhode Island Red | 58 | 60.55 | Rhode Island |
| E. B. Parmenter | Rhode Island Red | 55 | 59.60 | Florida |
| To-Lani Poultry Farm | Rhode Island Red | 55 | 58.85 | Missouri |
| Crooks Farm | Rhode Island Red | 54 | 58.70 | Long Island |
| Kauder's Pedigreed Leghorns | White Leghorn | 53 | 57.65 | Texas |
| To-Lani Poultry Farm | Rhode Island Red | 56 | 55.25 | Oklahoma |

## Twenty High White Leghorn Pens to Dec. 1–(61 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Rapp's Poultry Farm | 685 | 700.60 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | 671 | 696.95 | Georgia |
| Holser's Valley Farm | 679 | 693.30 | Storrs |
| Howard Woodward | 675 | 686.70 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | 646 | 675.35 | Pennsylvania |
| Kauder's Pedigreed Leghorns | 668 | 671.65 | Storrs |
| J. A. Hanson | 676 | 669.55 | Georgia |
| Rapp's Poultry Farm | 661 | 664.00 | Hunterdon, N. J. |
| Crescent Farms | 625 | 662.95 | Florida |
| Guy A. Leader | 710 | 659.05 | Storrs |
| Kauder's Pedigreed Leghorns | 654 | 653.80 | Georgia |
| Gold Spot Hatchery | 637 | 652.15 | Arizona |
| Babcock's Hatchery | 694 | 651.05 | Pennsylvania |
| J. A. Hanson | 659 | 650.90 | Georgia |
| A. B. Gillam | 671 | 643.05 | Georgia |
| Foreman Poultry Farm | 666 | 639.70 | Storrs |
| Foreman Poultry Farm | 623 | 639.25 | Missouri |
| Nelson's Leghorn Breeding Farm | 620 | 638.15 | Arizona |
| Kauder's Pedigreed Leghorns | 628 | 637.80 | Storrs |
| Foreman Poultry Farm | 639 | 637.40 | Arizona |

## Twenty High Rhode Island Red Pens to Dec. 1–(61 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| J. J. Warren | 692 | 694.80 | Storrs |
| W. H. Wilson | 673 | 694.25 | Georgia |
| Harco Orchards | 665 | 692.20 | Storrs |
| W. H. Wilson | 708 | 691.30 | Georgia |
| J. J. Warren | 692 | 686.35 | Georgia |
| Bagby Poultry Farm | 653 | 673.05 | Arizona |
| E. B. Parmenter | 688 | 668.55 | Passaic, N. J. |
| Ralph W. Anderson | 632 | 667.40 | Rhode Island |
| E. B. Parmenter | 676 | 667.25 | Storrs |
| C. C. Hersey | 691 | 664.10 | Storrs |
| J. J. Warren | 692 | 660.20 | Storrs |
| E. B. Parmenter | 630 | 656.85 | Storrs |
| E. B. Parmenter | 632 | 654.85 | Rhode Island |
| Harco Orchards | 627 | 651.95 | Rhode Island |
| Peckham Farm | 650 | 651.80 | Rhode Island |
| David T. Cohen | 643 | 650.90 | Georgia |
| Crooks Farm | 656 | 650.10 | Storrs |
| J. J. Warren | 631 | 644.80 | Rhode Island |
| Crooks Farm | 644 | 643.45 | Storrs |
| J. J. Warren | 630 | 635.25 | California |

## Twenty High New Hampshire Pens to Dec. 1–(61 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Joachim Breeding Farm | 654 | 661.60 | Storrs |
| George A. Pearce | 655 | 656.20 | Hunterdon, N. J. |
| James H. Horne | 629 | 631.50 | Storrs |
| C. D. Cummings | 669 | 631.40 | Georgia |
| Hubbard Farms | 647 | 629.55 | Storrs |
| H. S. Twichell | 638 | 620.75 | Storrs |
| Nedlar Farm | 629 | 614.65 | Georgia |
| Crescent Farms | 606 | 609.95 | Florida |
| George A. Pearce | 616 | 609.85 | Storrs |
| Pine Mountain Valley Farm | 624 | 607.25 | Georgia |
| Thos. J. Harrold | 629 | 597.40 | Georgia |
| Hubbard Farms | 612 | 591.40 | Western New York |
| Howard Breeding Farm | 568 | 573.65 | California |
| Hubbard Farms | 599 | 566.35 | Florida |
| James H. Horne | 578 | 564.40 | Pennsylvania |
| Joachim Breeding Farm | 586 | 563.85 | Pennsylvania |
| Joachim Breeding Farm | 556 | 561.80 | Hunterdon, N. J. |
| Hubbard Farms | 596 | 557.55 | Georgia |
| Hubbard Farms | 588 | 555.15 | Pennsylvania |
| Pine Top Poultry Farm | 543 | 554.05 | Rhode Island |

## Twenty High Barred Plymouth Rock Pens to Dec. 1–(61 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| J. W. Schaible | 700 | 635.05 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 630 | 615.25 | Storrs |
| Dryden Poultry Breeding Farm | 635 | 599.45 | Storrs |
| Robert C. Cobb | 597 | 584.25 | Storrs |
| Pine Top Poultry Farm | 589 | 577.40 | Rhode Island |
| Harco Orchards | 589 | 577.25 | Rhode Island |
| Angus J. Urquhart | 636 | 576.00 | Maine |
| Harco Orchards | 627 | 562.85 | Maine |
| Hochhockson Farm | 566 | 557.35 | Hunterdon, N. J. |
| Fisher Orchards | 541 | 555.25 | Pennsylvania |
| Dryden Poultry Breeding Farm | 588 | 549.80 | California |
| Foster Jameson | 534 | 537.75 | Maine |
| Vincent Nasto | 545 | 510.10 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 528 | 501.30 | Pennsylvania |
| Arbor Acres Farm | 514 | 488.95 | Storrs |
| Angus J. Urquhart | 533 | 487.15 | Passaic, N. J. |
| Riley Poultry Farm | 505 | 482.90 | Pennsylvania |
| Harco Orchards | 482 | 480.15 | Storrs |
| Broad Acres Farm | 459 | 474.70 | Storrs |
| David T. Cohen | 476 | 471.60 | Georgia |

## Twenty High White Plymouth Rock Pens to Dec. 1—(61 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Riley Poultry Farm | 616 | 579.70 | Storrs |
| Carter-Dunham | 560 | 557.10 | Pennsylvania |
| Holtzapple Poultry Farm | 564 | 531.95 | Georgia |
| Albert C. Lawton | 549 | 523.30 | Rhode Island |
| Ralph DeYoung | 518 | 506.45 | Maine |
| Missouri Valley Poultry Farm | 523 | 501.75 | Georgia |
| Riley Poultry Farm | 526 | 495.85 | Georgia |
| Townsley Trapnest Farm | 508 | 495.65 | Georgia |
| Four Winds Farm | 503 | 489.05 | Michigan |
| Riley Poultry Farm | 520 | 488.75 | Michigan |
| Drumm Egg Farm | 487 | 483.55 | Georgia |
| Carter-Dunham | 501 | 472.05 | Storrs |
| Albert C. Lawton | 478 | 468.45 | Storrs |
| John Spangenberg | 507 | 465.00 | Maine |
| Bagby Poultry Farm | 461 | 462.35 | Texas |
| Knepley Hatchery | 472 | 454.20 | Oklahoma |
| Booth Farms and Hatchery | 463 | 447.35 | Texas |
| Bagby Poultry Farm | 478 | 445.35 | Maine |
| Kerr Chickeries | 470 | 445.05 | Maine |
| Pine Top Poultry Farm | 460 | 437.90 | Pennsylvania |

## Average Production and Mortality, Each Test, to Dec. 1—(61 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for Dec. | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Arizona | 390 | 40.00 | 40.51 | 24.24 | 1.54 | 1.54 |
| Hunterdon, N. J. | 624 | 41.45 | 40.07 | 23.32 | .80 | 1.61 |
| Georgia | 1,326 | 41.58 | 39.44 | 22.96 | 1.28 | 1.66 |
| Storrs | 1,352 | 39.95 | 38.45 | 23.24 | .89 | 1.19 |
| Rhode Island | 611 | 38.31 | 37.56 | 23.60 | .81 | 1.81 |
| Pennsylvania | 1,105 | 41.79 | 36.77 | 21.58 | .46 | .46 |
| California | 598 | 35.80 | 33.96 | 22.96 | .69 | 1.34 |
| Florida | 1,118 | 34.49 | 32.70 | 22.96 | 1.34 | 2.24 |
| Texas | 1,456 | 33.74 | 32.58 | 23.30 | .53 | .53 |
| Passaic, N. J. | 871 | 32.87 | 31.36 | 23.08 | 1.61 | 1.73 |
| Maine | 988 | 31.71 | 29.71 | 22.72 | .50 | .71 |
| Western New York | 975 | 29.46 | 28.54 | 23.36 | 1.03 | 1.03 |
| Oklahoma | 650 | 29.03 | 27.23 | 23.44 | 1.23 | 1.54 |
| Central New York | 1,066 | 28.01 | 26.98 | 23.26 | .66 | .66 |
| Michigan | 871 | 28.64 | 26.04 | 22.18 | .80 | 1.61 |
| Long Island | 1,092 | 27.68 | 25.83 | 22.66 | .82 | 1.65 |
| Missouri | 780 | 21.61 | 21.61 | 24.00 | 0.00 | .39 |
| All Tests | 15,873 | 33.88 | 32.31 | 23.11 | .93 | 1.27 |

MANY hunters have advocated killing bearded hen turkeys because they do not raise young. In refutation of that belief, a Texas game department warden reports having seen two heavily bearded hens with several young. One had thirteen, the other eight. Bearded ladies?

—Turkey Talk, November, 1941.

DRUG STORES in 1939 sold $21,784,918 worth of poultry remedies, a little more than one-fourth of all livestock remedy sales through drug stores, according to an analysis of a survey published in Drug Topics for Jan. 5, 1942.

SMALL troughs swinging from dropping boards of his laying houses in Kosciusko county, Indiana, keep King W. Howard's hens supplied with granite grit and oyster shell.

—Capper's Farmer, August, 1941.

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# *Salvage for Victory*

Poultrymen can add materially to the ultimate success of the "Salvage for Victory" campaign launched recently throughout the United States, according to W. D. Termohlen, Chief of the Poultry Division of the Surplus Marketing Administration, U. S. Department of Agriculture. "It is the purpose of the campaign to salvage every pound of scrap material which may be of use in making war supplies," he said. "Throughout the Nation," he continued, "thousands of tons of usable metal, paper, sacking, rubber, rags, and other critically needed materials can be salvaged and put to vital use. Much of this scrap lies forgotten in rubbish heaps, and in nooks and crannies of farms, farm buildings, and homes. It should all go back into circulation.

"Poultrymen and farmers frequently have large accumulations of scrap materials that are usable, such as broken canopy brooders, burnt-out grates and stoves and other metal equipment beyond repair, cardboard cartons, old paper, cotton or jute sacks, old tires, and even fruit jar rings. All such material has value today. Much of it is seriously needed.

"Poultrymen and farmers have undertaken the job of keeping up food supplies, so that all of us can be well fed. Armed forces have guns to feed and in real shooting wars cannons are heavy eaters of many kinds of metal. Ammunition for our forces on the fighting fronts is sent to them in corrugated paper boxes. Waste papers supply the raw materials for these boxes and cartons.

"Just as important as the salvage of scrap is the necessity of keeping all usable poultry equipment and farm machinery in full repair. Remember that while certain quantities of raw materials have been allocated to manufacturers of poultry and farm equipment, the quantities are limited because of the great demand for war materials.

"Consequently, make the keeping in repair of poultry equipment and farm machinery the first order and buy new machines only when absolutely necessary. In the search of homes and farm buildings for scrap of every description, this should be kept in mind. Save usable machine parts, but scrap the broken and unusable parts, as recommended by the Bureau of Industrial Conservation. Scrap dealers will usually call for quantities of scrap weighing 100 pounds or more, but it is better to deliver smaller quantities to the dealers themselves. Dealers in all kinds of scrap materials usually are listed in telephone books."

—News Release from the U. S. Department of Agriculture.

# Even Hens Hit by Blackout

Proposed blackouts pose a problem for poultrymen: What about the lights used in hen houses to encourage egg production, especially since the country needs more eggs?

Poultrymen who plan ahead may be able to prevent any loss in egg production during blackouts by adjusting the lighting schedule to provide only 13 hours of light. Instead of night lights, the light can be applied during the twilight periods in morning and evening. Add these hours to the daylight ones to give the recommended 13 hours. No benefits come from more light.

Another way to continue the lighting program is to darken the windows, if the building has flue ventilators instead of window-ventilation. It is probable that ventilator shafts and indirect air intakes will require darkening to prevent the escape of some light.

Taking for granted that during blackouts all lights should be out, particularly around cities and towns, and along main highways, poultrymen should make sure their area is designated a blackout zone before they invest in material to darken poultry houses.

—E. I. Robertson, Cornell News Release, Dec. 29, 1941.

# Dried Eggs and Egg Price Fluctuations

Dried eggs may compete with fresh eggs in the food markets some day. Britain's demand for dried eggs has caused egg-drying plants to spring up like mushrooms. By the end of the year, 37 new ones will have been established. Plus 16 others that have been operating, Uncle Sam's drying plants could produce 145,000,000 pounds of dried eggs per year. That's the equivalent of 5,800,000,000 fresh eggs, or one-seventh of all eggs produced in the United States in a year.

After the war is over, the export demand for Uncle Sam's dried eggs may slacken, but housewives in the United States may have learned by that time to use dried eggs in cooking, just as our baking industry does. Food specialists are working on ways to improve quality, and on recipes calling for dried eggs (either whites, or yolks, or both). One big food company is experimenting with putting out a consumer package of dried eggs. If the idea takes hold, it may help to take the seasonal ups and downs out of egg prices.

—Farm Journal, December, 1941.

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# Poultry Outlook for 1942

*Condensed from The Poultry and Egg Situation*

SINCE the production goals for several commodities were established last September, the prospective demands for many farm products have increased. To meet these additional demands, the Department of Agriculture on January 16 announced the revision of 1942 production goals for many commodities. For eggs, the goal was increased from about 4 billion dozens, as established last September, to 4,200 million dozens. These figures include an allowance for non-farm production which is estimated at about 10 per cent of the farm output.

In terms of farm production, the revised goal calls for 3,822 million dozens, compared with the September goal of 3,700 million dozens and the 1941 production of 3,393 million dozens. The revised 1942 production goal, therefore, is 12.6 per cent larger than the 1941 output. It exceeds the 1940 output by 18 per cent and the 1936-40 average production by 23 per cent. If the goal is reached, the prospective lend-lease requirements of somewhat over 600 million dozens (shell-egg equivalent, compared with 500 million formerly anticipated) can be fully met, while maintaining domestic per capita supplies at the average for recent years.

## More Potential Layers

On January 1, the number of potential layers in crop reporters' flocks (of less than 400 birds) was 8.1 per cent larger than on January 1, 1941. The average number of layers

Bureau of Agricultural Economics, U. S. Department of Agriculture, Washington, D. C.
The Poultry and Egg Situation, January, 1942

on farms in the United States in December, including flocks of more than 400 birds, was 7 per cent larger than a year earlier. During the last few months of 1941, the number of birds in flocks of more than 400 layers increased greater than usual relative to the flocks of smaller size.

The increase in layers over a year earlier is expected to expand further during coming months. The most important basis for this expectation is the favorable feed-egg price relationship in prospect. Although the feed-egg ratio may not be as favorable in 1942 as it was last year, it is expected to be more favorable than average. As a result, farmers will keep as many hens for egg production as possible.

### More Pullets on Farms

During the first 3 months of 1941, the feed-egg ratio was considerably less favorable than average, so the incentive to keep all available hens was not as great as it probably will be this year. A second factor is that this year's laying flocks are composed of a slightly larger proportion of pullets than those in early 1941. On January 1, the average number of hens per flock, 31.1 head, was 3 per cent larger than a year earlier while the number of all pullets was 10 per cent larger than the 65.7 head average on January 1, 1941. Of the potential layers in farm flocks (including pullets not of laying age) on January 1, 70 per cent were pullets, compared with 69 per cent in early 1941. Because of the favorable egg prices in prospect, all available pullets probably will be utilized for laying purposes.

The rate of lay per hen in 1941 was the largest on record and continued at record levels until the cold weather in early January. The favorable feed-egg ratio in prospect and the larger proportion of pullets in laying flocks will help to maintain a continued high rate of output per bird. The newly announced program of the Department of Agriculture to release wheat at prices comparable to corn prices will improve the poultry feed situation in some areas.

All factors considered, therefore, it appears likely that the revised production goal for eggs is within the range of probable output. With unusually favorable weather and ample feed supplies throughout 1942, it may even be exceeded. In the Nation-wide farm canvass recently completed, farmers indicated that they intended to produce even more eggs than are called for in the revised production goal.

### Price Support Extended

As part of the announcement revising the production goals, the Secretary proclaimed that prices for eggs and chickens (excluding broilers) and some other commodities would be supported at not less than 85 per cent of parity through June 30, 1943, rather than just to December 31, 1942, as announced in September, 1941. As applied to eggs, the Department will make purchases if necessary in the open market, within the limit of available funds, to keep the United States average price received by farmers for eggs at not less than 85 per cent of parity.

With a stronger average consumer demand in prospect for this year than in 1941, and the lend-lease purchases expected to be made, it is likely that egg prices this year will average higher than in 1941.

### Chicken Prospects

The relatively low chicken prices in early December and continually advancing feed prices resulted in numerous cancellations of orders for baby chicks. This was accompanied by a sharp drop in the number of eggs set during December. The number increased during the last half of the month, however, and the total for December was 31 per cent larger than the number set in December 1940. The number of chicks hatched was 52 per cent larger than in December 1940.

On January 1, the number of chicks on advance order, for various delivery dates, was 54 per cent larger than a year earlier. The rise in chicken prices during the past several weeks has resulted in a marked strengthening in the demand for baby chicks in commercial broiler areas.

Although prices received by farmers for chickens in 1941 were low relative to prices of most other farm products and to feed prices, it is expected that the number of chickens raised on farms this year will be even larger than the number raised last year. A favorable feed-egg ratio is more important in determining the farmers' demand for chicks in general farming areas than the feed-chicken ratio. The feed-egg ratio in 1942 is expected to be relatively more favorable than the feed-chicken ratio.

The revised goal of chicken slaughter for 1942 (644 million head), as announced by the Secretary on January 16, is 10 per cent larger than the estimated slaughter in 1941. The slaughter figure consists of the number of chickens consumed on farms and the number sold. This figure is not comparable with published data for earlier years, however, because a considerable number of commercial broilers have been removed from the data on general farm production of chickens, on the basis of information which recently became available. Data closely comparable to the goal figure will be published by the Agricultural Marketing Service within a few months.

### Slaughter Up 10 Per cent

The 10 per cent increase in slaughter of farm chickens was estimated on the assumption that the slaughter of fowl this year would be considerably larger than in 1941, and the increase over last year in the number of chickens raised on farms would be about 7 per cent.

### Prices to Go Higher

Although supplies of chicken meat will be considerably larger in 1942 than in 1941, it is fairly likely that the United States average price received by farmers for chickens will average higher this year than in 1941. The domestic supplies of other meats this year also will be much larger than in 1941, but with the prospects for a stronger average consumer demand and an advance in the general price level, it is expected that prices received by farmers for livestock and livestock products will average higher in 1942 than in 1941. Prices received by farmers for fowls and young chickens probably will be in a more nearly normal relationship than they were during most of 1941.

An additional factor in the farm chicken price outlook is that the Department of Agriculture intends to purchase for lend-lease a considerable quantity of canned-boned chicken in 1942.

### Broilers Discouraged

In extending the period during which chicken prices will be supported at not less than 85 per cent of parity, the Secretary specifically stated that prices of commercial broilers are not to be supported. Commercial broiler production has increased at a phenomenal rate during the past few years, and in view of the fact that per capita consumption of chicken meat this year will be by far the largest on record, it is difficult to estimate how much expansion in permanent broiler facilities would be desirable.

Although an increased broiler output may be absorbed at favorable prices during most of 1942, it may be costly for individual raisers to materially expand expensive permanent facilities at this time. It would be desirable for broiler producers, therefore, to attempt to raise no more broilers than can be handled with present facilities and to avoid marketing large numbers at the same time that marketings in general farming areas are at a seasonally high level. Supplies of young chickens that will come from general farming areas during the last part of 1942 are expected to be the largest on record.

### Feed Plentiful

Supplies of feed grains, hay, and high-protein feeds are the largest in more than 20 years. Consumption of feed grains during 1941-42 is expected to be larger than the 1941 crop, so that the carry-over into 1942-43 probably will be smaller than at the beginning of 1941-42.

Feed grain prices advanced about 25 per cent during 1941, and by-product feed prices advanced about 35 per cent. The strong demand for feed and the higher loan on 1942 corn are expected to hold feed prices during 1942 near or above the late 1941 level. The policy established early in 1941 of selling Government-owned corn stocks will continue through 1942.

The feed-production goal has been increased along with livestock goals. In addition, provision was recently made whereby approximately 100 million bushels of wheat owned by the Commodity Credit Corporation was offered for sale to producers of livestock products.

The feed-egg ratio in 1942 is expected to be more favorable than average but probably not as favorable as the average for 1941.

### More Turkeys Expected

Because of the favorable outcome of turkey raising during 1941, a considerable increase in production is expected this year. A material increase in turkey supplies probably could be absorbed in 1942 at prices which compare favorably with prices in 1941.

National income probably will be at least 10 billion dollars greater in 1942 than in 1941. Incomes of industrial workers will be over 15 per cent greater than in 1941, and nearly double what they were at the beginning of the war. But increased taxes applying to individuals may hold the net increase in the money purchasing power of consumers in 1942, over the average for 1941, to not much more than 5 per cent.

### Demand High

The net result of increased money incomes, taxes, and defense bond purchases may leave the money income of consumers available for purchase of commodities and services in 1942 as a whole not much different from the present level. For some groups, it will be even less than in 1941. Increased war production, however, will substantially reduce the quantity of factory products remaining for civilian use, probably to less than the quantity in 1940, so that consumer income in relation to available supplies of goods will be increased. This should add to the consumer demand for farm products in 1942 compared with 1941.

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## *Ratproofing Poultry Houses*

Rats can be effectively eradicated from poultry houses, provided all harboring and breeding places are eliminated, and if rats are kept from all sources of feed. Periodic poisoning by means of baits, and of dogs and cats are, at best, only partially effective.

Ratproofing measures are usually incorporated in modern designs or plans and do not add to the cost. In old structures, the problems encountered may mean remodeling or extensive repair of the structures involved.

Elimination of harboring places may mean the removal of loose or dilapidated plank flooring and its replacement with concrete; the repairing of existing foundation walls to prevent the entrance of rats; the use of hardware cloth or screens on door, window, ventilating and all other openings; the raising of small structures such as poultry houses and corn cribs; or the removal of rubbish piles.

### Cut Off Food

The second effective means is the removal or the cutting off of the food supply. This may be done by ratproof containers for food, grain, and garbage and by housing poultry in ratproof buildings. A combination of these two methods is most effective in ridding premises of rats.

Rats are often inadvertently allowed to gain entrance through an open door or are brought in with food and may find temporary harboring places between barrels, boxes, crates or sacks, particularly where food is present. If cats and dogs are to do an efficient job of rat catching, boxes, bags and other containers should be stacked or piled so as not to restrict their activities. In addition, all buildings not provided with concrete floors and foundation walls must be of such height as to allo access beneath them, and the pr mises must be free from accumula tions of rubbish. These methods particularly when combined, ar most effective in ridding far property of rats.

### Trapping Ineffective

Trapping and poisoning are e fective only against rats that a large enough to run around. Whe normal food supplies are availabl many rats avoid traps or decline partake of poisoned bait. Suc methods at best are productive on of temporary results, since they fa to remove the real cause — rat ha borage. Where rat fumigants poisons are used but once a yea there are excellent opportunities f rats to breed unmolested, inasmuc as the rat breeds from three to fi times a year, with litters of from to 19 rats each. Young rats are ca able of breeding when only thre months old.

Constant vigilance and the pre ence of rat-catching dogs or cats a effective if the harboring places a accessible. Concerted and combine efforts of all farmers in a given are will lessen the number of rats to t extent that the damage will small. Merely reducing the r population, however, is insufficien as conditions favoring an increase numbers soon prevail.

—W. C. Harrington, Featheredfax, Dece ber, 1941-January, 1942.

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# Fundamentals Unchanged by War

By LEWIS W. TAYLOR
University of California

*Reprinted from California Cultivator*

IN these days when so many conditions that have been taken for granted are being limited by governmental order or set aside for the duration, poultrymen may well wonder what is going to happen to their methods of poultry production. Already, some commonly used feedstuffs and supplies are either seriously limited or are no longer available. Changes in management practices, if not already effected, will probably become necessary.

It is not my purpose, however, to present here a summary of detailed changes that have already been made or to prophesy what will need to be done in the future. Instead, I wish to point out a few fundamental considerations which are not changed by war and which poultrymen should not forget.

### Maintain Feed Quality

War will not change the fundamental requirements of poultry for nutritional essentials. While poultry rations will necessarily change with respect to the feedstuffs available for use in their formulation, the birds' requirements for specific vitamins, amino acids, minerals, etc., cannot be expected to change. The problem facing the feed industry and the poultryman is that of finding substitutes that can replace concentrates no longer available without decreasing the quality of the ration.

War will not make a good producer out of an inherently poor bird. If anything, war conditions will emphasize the importance of desirable hereditary characteristics. The value of a relatively nonpausing stock is being demonstrated this winter by blackouts which interrupt periods of artificial lighting. Many poultrymen have been able to prevent excessive winter pausing in the past by use of lights. Now the uncertainties of uses of a lighting program should cause increased interest in the breeding and sale of strains of birds which are capable of good winter production under the normal daily light conditions for this state.

War will not make the fundamental quality of eggs and meat produced any less important. Eggs are required as a product of high nutritional value for home consumption and for export. The production of clean eggs, free from defects of shell and interior quality

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and containing high levels of vitamins will continue to be important. Prevention of the loss of value in waste or inedible eggs will also be of increasing necessity. Any method of management, marketing, or storage which tends to be wasteful or to involve loss of quality will need to be avoided. Since government purchase of eggs and poultry meat are subject to federal inspection, quality must be maintained or even improved.

### Better Management Needed

War will not make inefficient management methods practical. Every evidence indicates that increased efficiency will be mandatory for all poultry operations. Effective use of labor in carrying on plant work is becoming increasingly imperative. The poultryman will need to be careful, however, that the work applied on the ranch is not reduced to the point where the health and productivity of the flock is threatened. Efficiency of production must not be reduced if increased quotas in production of eggs and meat are to be met.

War will not make culling unnecessary. Some types of birds which previously could not pay for their keep may, as a result of favorable egg-feed ratios, show a slight margin of profit. This should not induce a relaxation of culling practices, because unthrifty and diseased individuals kept in the flock will only jeopardize the productive capacity of their pen-mates and may often lead to decreased rather than increased total production.

War will not make the cure of poultry diseases more important than their prevention. Whether the specific disease condition can be combated best by sanitation, vaccines, blood testing, breeding selection, or any other method, the commercial poultryman will still find it to his advantage either to keep his flock from being exposed to the disease or, if that is not possible, to give his birds the conditions that will enable them to be immune to or resist the effects of the disease. He will not be able to afford losses while attempting to cure what might have been prevented.

War will not change the fact that intelligent research is the best antidote for a lack of knowledge.

These are a few, not all, of the fundamentals that will remain effective in poultry production whether conditions become better or worse for the poultry industry. In making necessary adjustments to meet specific conditions, poultrymen should not forget the fundamentals that still remain unchanged.

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AN Olympia, Washington, hen responded to the request to "Keep 'em laying," with a 5-ounce, triple-yolked egg, 7 inches in circumference, say newspaper reports.

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# Meeting Emergency Conditions Affecting Poultry Rations

By THOMAS H. JUKES

University of California

IN spite of many restrictions in the supply of important feed ingredients encountered during 1941, it was possible to cope with the shortages successfully and the nutritional quality of poultry rations was unimpaired. Further restrictions in supplies, however, coupled with the governmental call for an increase in egg production, emphasize the need for information on how to maintain the high nutritional standards of modern poultry-feeds.

### Supplying Riboflavin

Experimental studies led a few years ago to the discovery that riboflavin was one of the most important dietary constituents of milk. This drew attention to the vital role of riboflavin in poultry nutrition, and the riboflavin content of common feedstuffs was studied by many investigators. New sources of riboflavin made their appearance on the market, and simultaneously the importance of green leaves, either fresh or dried, in poultry rations became more fully appreciated.

Alfalfa meal usually contains from 10 to 20 micrograms of riboflavin per gram, and samples of alfalfa meal of low fiber content tend to contain more riboflavin than samples which are high in fiber. Young tender greens contain about 2 to 3 micrograms of riboflavin per gram of fresh weight, or 20 to 30 micrograms per gram of dry matter.

### Dried Milk Scarce

At present, there exists a shortage of dried milk because of the heavy shipments to Great Britain. This shortage has been immediately met by making modifications in poultry rations, and modern knowledge of nutrition aided greatly in making the changes. Dried whey has been used successfully to replace dried skim milk in many poultry rations. Dried whey is lower in protein but contains, on the average, about the same amount of riboflavin as dried skim milk.

Among the newer sources of riboflavin are certain products prepared from fermentation residues. These residues often contain large amounts of the vitamin-B complex, including riboflavin, which are formed by micro-organisms during controlled fermentation processes. The amount of riboflavin present in such by-products may vary and should be measured and guaranteed by the manufacturer of the product.

A shortage of fish products was encountered in 1941. Our vitamin D oils were formerly obtained to a large extent from Norway and Japan, and war conditions caused an abrupt reduction in those supplies. Fortunately, other sources of vitamin D are available to poultrymen. First and foremost is direct sunlight, and good managers will take advantage of this natural vitamin D. An exposure of half an hour per day will supply a large part of the vitamin D requirement of all classes of poultry. Sun porches help to bring confined birds into contact with the sun. Turkeys on the range, with the exception of breeding flocks, can obtain their entire vitamin D supply from the sun, and vitamin D need not be added to their ration. In the skin of the shanks and feet of chickens, there exists a substance which is transformed into vitamin D by sunlight.

### New Vitamin D Source

A new source of vitamin D has recently been developed in the United States. This is an irradiated animal-sterol product which is utilized by poultry in an efficient manner. This is in contrast to the inefficiency of irradiated plant-sterol products when fed to birds. This new source of vitamin D is now being used in many poultry mashes.

Another fish product, and one which is known to be of great value in poultry rations, is fish meal. The manufacture of sardine meal was proceeding rapidly during the current season until the outbreak of war, which has resulted in a temporary curtailment of fishing in the Pacific. Fortunately, other protein concentrates are available. The nutritive value of soybean meal is now known to be increased by a controlled and moderate heat treatment, and such a treatment is now commonly included in its manufacture. This improvement in the process by which soybean meal is made, together with recent studies which have shown the value of the product in poultry nutrition, indicate that soybean meal will continue to play an increasingly important part in poultry rations.

### New Nutrition Studies

Fundamental studies of poultry nutrition are continuing in many experiment stations. Among the newer fields of study are:

The protein requirement of chick in terms of essential amino acids the role of the B-complex vitamin in chick nutrition, including the newer factors such as biotin and "folic acid;" and the iodine requirements of poultry in a deficient region. These and other studies may be expected to add to our knowledge of how to make changes and substitutions in poultry rations.

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# The ABC of Vitamins

### By VICTOR HEIMAN

***Reprinted from Everybodys Poultry Magazine***

HAVE you ever wondered how vitamins could have become so necessary and numerous in the short space of 30 years? The truth of the matter is that vitamins are no more numerous or necessary now than they were at the time of Washington, Columbus, Caesar, or Moses. Vitamins are an essential part of the diet and always have been. The fact that mankind is now aware of the existence of many vitamins does not make them more important. This knowledge, however, does make it possible to combine nutrients intelligently and thus make balanced feeds.

### Why Vitamins are Required

If chickens were kept today as they were 50 years ago on the average farm, and if no more were expected in the way of production, there would be no talk of vitamins and balanced rations for special purposes. A few dozen eggs a year, laid mostly in the spring, was not a very hard goal to reach, even with rations made up of grain, green stuff, insects, and table scraps.

As poultry began to be kept in larger numbers, in closer confinement, with chicks and egg production sought at abnormal times of the year, the problems of nutrition correspondingly increased. Ingenious men have studied these problems and have solved and are solving many of them. Out of these studies has grown the present knowledge of the vitamins.

### Only Small Amounts Needed

Vitamins are different from most other nutrients because they are needed only in very small amounts in the ration. If, for example, all of the vitamin G (riboflavin) were removed from 20 bags of a top quality chick starter, you would have less than 1/10 ounce of this vitamin. Even dried skimmilk, which is an excellent source of vitamin G, contains only about 1/30 ounce of this vitamin per 100 pounds.

In the case of vitamin D, the actual amount of the pure vitamin present is very much less than this. Even in 100 pounds of ordinary cod liver oil, which is a potent source of this vitamin, if you could get out 1/300 ounce of vitamin D, you would have it all. Now put 1 pound of this cod liver oil in 100 pounds of feed, and the result is a feed containing 1/30,000 ounce of pure vitamin D in 100 pounds of feed. Not very much, is it? Essentially,

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the same story can be told of the other vitamins; they are needed in small amounts.

### Named from Alphabet

The vitamins were originally named from the alphabet for lack of a better method of naming. At first, research workers knew only that certain necessary nutritional factors existed, that if they were not included in the diet, sickness developed. Gradually, each of the vitamins is being tracked down, till now the chemical make-up of many of them has been definitely established and some of the vitamins have been actually made by chemists.

Many vitamins and nutritional factors classed as vitamins are now known. From the present knowledge available, some of these do not appear to be required by chickens. Examples are vitamin C, P, anti-gray hair factor, factor W, and nicotinic acid. Besides this group there are many other vitamins which appear to be essential to the well-being of chickens, but our knowledge of them is still very limited. Some of the factors in this class required by poultry for either normal growth, reproduction, or maintenance, are vitamin $B_4$, $B_6$, choline, anti-gizzard erosion factor, and factors R and S.

### The Big Three

For practical feeding, the vitamins to keep an eye on are the "big 3," A, D, and G. Vitamin $B_1$ is so plentiful in any ration containing the usual grains and their by-products that there is no danger of a shortage A deficiency of vitamins E, K, the filtrate factor, and the other vitamins required by chickens, while not impossible, is not likely when good wholesome ingredients are used to balance the ration in all other respects.

One fact which is becoming increasingly clear about some of the vitamins, at least, is the fact that they are not necessarily a single chemical substance. In the case of vitamin D, for instance, there are several chemical substances which have vitamin D activity. There was a time when most people thought of vitamin D in terms of cod liver oil. Today, however, poultrymen are thinking less about cod liver oil and more about vitamin D from many sources. It is the effective vitamin present that really matters, not the substance which carries it.

### Measuring Vitamin D Potency

Chicks cannot use all the forms of vitamin D efficiently. That is why it is necessary to measure the vitamin D potency with chicks; rat tests will not do. It is the number of AOAC (Association of Official Agricultural Chemists) chick units that really count for vitamin D value in poultry feeding.

There is also more than one chemical compound which can be used to

furnish vitamin A. The vitamin A of fish oils is not at all the same as the vitamin A in alfalfa, for instance. Carotene in alfalfa is not really vitamin A, but when the alfalfa is eaten in the ration and taken into the body, the carotene is changed into vitamin A by the liver. In the case of fish oils, the vitamin A is in the final finished form. There are several other sources of vitamin A, but this is sufficient to illustrate the point.

Even vitamin G (riboflavin) may be in the free form or combined with protein. No doubt this will be found true of at least some of the other vitamins.

There is considerable difference in the keeping qualities or stability of the various vitamins. Vitamin A, among the "big 3," is the most likely to be destroyed under ordinary storage conditions of mixed feeds. Hot weather will destroy this vitamin much more rapidly than cool temperatures.

Vitamin D is ordinarily considered to be very resistant to destruction. This is apparently true as long as the vitamin D remains in a carrier like cod liver oil or other fish oils, or when this oil is mixed with ground grains or their by-products.

Vitamin G is not destroyed to any appreciable extent by the usual methods of mixing and storing feed.

**Vitamins Required by Chickens**

| This vitamin | Found in these feedstuffs | Must be furnished or these symptoms develop |
|---|---|---|
| **A *** | Green grass, yellow corn, cod liver and other fish oils, carotene extracts and yellow carrots. | Nutritional roup, eye infection, unsteady walk, poor growth, improper function of kidneys, decreased egg production and hatchability. |
| **B**<br>($B_1$ or thiamin) | All grains and their by-products, grass, alfalfa, milk products. | Poor growth and appetite, unsteady walk, convulsions, death. |
| **D ***<br>(Activated 7-Dehydrocholesterol) | Cod liver oil and other fish oils, irriadiated cholesterol, direct sunlight. | Faulty bone development (rickets), poor growth and lameness in chicks. Brittle bones, poor egg production, thin-shelled eggs and low hatchability in layers. |
| **E**<br>(alpha tocopherol) | Whole grains, wheat by-products, dried or fresh grenes, wheat germ oil. | Reproductive failure, injury to brain tissue (crazy chick disease), low fertility and hatchability. |
| **G ***<br>(Riboflavin) | Milk products, glandular tissue, yeast, dried and fresh greens. | Nutritional paralysis and poor growth in chicks, reduced hatchability in breeders. |
| **K**<br>(2-methyl-3-phytyl-1, 4-napthoquinone) | Dried and fresh green feeds, soybeans. | Blood fails to clot and death results from hemorrhage. |
| **Filtrate Factor**<br>(Pantothenic acid) | Milk products, glandular tissue, fresh and dried green feeds, cane molasses. | Scabby sores at corners of beak, eyes, and bottoms of feet. Poor growth and feathering. |

* These vitamins are most apt to be partially lacking from the ration unless special precautions are taken to supply the requirements.

Some of the other vitamins are subject to destruction, however, so high temperature, moisture, long storage, and rancid ingredients should be avoided wherever possible.

Many people do not realize the great variations that can exist in the vitamin content of the same ingredients. Cod liver oil, fish oils, alfalfa leaf meals, milk products of various kinds, meat scraps, fish meals, and many such ingredients may be good, bad, or indifferent sources of the vitamins they furnish.

### Fish Oils Vary

Fish oil may have practically no vitamin D or it may contain several thousand units of vitamin D in each gram of oil, depending upon the kind of fish, the season, the location at which it is caught, and many other factors.

Alfalfa leaf meal may have the equivalent of 150,000 or more units of vitamin A per pound or it may have none, depending on the stage of maturity of the alfalfa, the method of curing, storage conditions, age, and other factors.

Dried skimmilk, dried buttermilk, and dried whey can all vary in their content of riboflavin. This is, in fact, true of practically every vitamin carrier. Fortunately, there are tests for measuring the vitamin content of various feed ingredients, and more and more feed manufacturers are buying their ingredients, not on the useless basis of "looks, taste, and smell," but on the results of carefully controlled scientific laboratory tests. If, in place of these tests, one must depend on published tables of average vitamin values, he is apt to miss the true vitamin value of a particular lot of an ingredient by a wide margin.

### Vitamin Requirements

There is some difference of opinion on the question of the vitamin requirements for the different vitamins for chicks, growing stock, layers, and breeders. The reason for this is the fact that the requirements for any one vitamin are influenced by many factors. The minimum requirements of growing chicks, for instance, have been variously found at between 17 and 50 units of vitamin D per 100 grams of feed. It is quite probable that under extreme circumstances, the requirements may be either more or less than these figures.

These requirements may vary, depending on the rate of growth, the carry-over from the hatching egg, the inherited ability of the chick to use this vitamin efficiently, and many other factors. What is true of this vitamin is true also of the others. The only solution is to allow margins of safety, well above the minimum vitamin requirements, that will meet all emergency needs.

One thing of great importance in nutrition thinking today is to keep a proper perspective on the whole field. Just because someone discovers that a certain vitamin is required by chickens doesn't necessarily mean that some new ingredient must be added. It may just help to explain the value of some of the ingredients that have been used since poultry feeds were first made.

Finally, the vitamins are only the ABCs, they are not the whole story. The whole story is complete nutrition, of which the vitamins are only a part.

## *Hawaiian Poultrymen and the War*

A letter from Gwenfread Allen, editor of Hawaii Farm and Home, gives us details of happenings that have not otherwise been made public. Immediately after the tragedy of December 7, the authorities requested that all chicks under five weeks be destroyed, that all eggs in incubators be taken out and fed to hogs or chickens. This was to conserve available feed for layers.

Further, all backyard poultry keepers were urged to immediately sell or kill and use for home consumption all classes of poultry except those fed exclusively on kitchen scraps. Only commercial and semi-commercial flocks would be eligible to buy commercial feeds. A semi-commercial flock was defined as one of 100 or more laying birds.

All commercial and semi-commercial flocks had to be immediately culled. In order to keep from glutting the market, cold storage facilities were used to store much poultry meat. Newspaper and radio publicity urged the public to eat chicken to clear the surplus. Cattle growers cooperated by stopping the slaughter of cattle for 10 days.

Practically all feed used for poultry is imported from the mainland. Naturally, with shipping restricted as it has been, and still is to a lesser extent, not a great deal of poultry feed will be sent to the islands, and what does go will command a price close to prohibitive.

Out at the University of Hawaii, a new experiment designed to test the value of commercial mashes supplemented with a mixture of koa haole seed meal, koa haole leaf meal, and a meal made from cull sweet potatoes, was started.

—Ernest C. Loyd, Pacific Poultryman, February, 1942.

¶ DURING the past 4½ years, the State of Maine has paid for 75,494 birds, valued at $56,228. Seventy per cent of this loss was caused by foxes. A committee to consider possible legislation aimed at this problem has been appointed.

—Maine Laying Test Report.

# Choosing Your Breed

By **WILLARD C. THOMPSON**
New Jersey Agricultural Experiment Station

*Condensed from Hints to Poultrymen*

THERE are seven factors which the poultry farmer must consider in choosing a breed or variety of poultry to be used for the table egg, broiler, roaster, or capon production.

If a poultryman is to develop his flock primarily as a table egg production enterprise, he must attempt to find a breed or variety which will furnish the kind of table egg most in demand in the vicinity in which the farm is located, and the type which the prevailing market will pay highest prices for, other things being equal.

## Egg Color is a Factor

In New Jersey, white eggs are preferred, and therefore the Leghorn breed is most popular. Within this breed, the white variety is being raised in numbers which greatly exceed the totals of all other varieties combined. This indicates that for the business of table egg production, the White Leghorn is the fowl which should be used in this state.

In New England and other areas in the northeastern region where the influence of the New York City market is not so potent, the brown egg breeds may be chosen, since local markets in such areas do not demand white eggs, nor do they offer premium prices for shell color.

In many localities in New Jersey, there is a demand for brown eggs as well as white, and therefore shell color should not be allowed to dictate the choice of breed entirely.

## Seek Side-Line Income

Many poultrymen, will find that, in addition to eggs, there will be a demand for hatching eggs, baby chicks, ready-to-lay pullets, replacement pullets, and breeding stock. With these added products of the modern poultry farm becoming a matter of economic significance on the plant, it is essential that the breed or variety should be in line with what the community will demand.

The poultryman should have a breed, or breeds, for which it will be necessary to do the least possible amount of publicizing or merchandizing to secure sales. If the buyer will come to the door, the cost of selling will be considerably lowered.

Important is the availability of economical improvement stock. There are few poultry plants which do not need to introduce improvement stock from time to time. While this may best be done in the form of hatching eggs or baby chicks from other strains, it is often done by the purchase of breeding males or ready-to-lay pullets.

New Jersey Agricultural Experiment Station, New Brunswick, N. J.
(Hints to Poultrymen, Vol. 28, No. 4)

The poultryman should use a breed of which there are many breeders to be found not too far from his farm. He should be able to choose between available stocks. The chances of getting real improvement stock are greatest in the breeds of which thousands of fowls are produced annually; of which many breeders are producing a selection and breed improvement each year; and wherein a liberal choice is at hand.

## Suit the Breed to the Enterprise

The breed of fowls chosen for commercial meat and egg production must be of a type well suited to the particular sort of enterprise in which the fowls are to be used. For example, if broiler production is to be the primary objective, the choice might well be limited to White or Barred Plymouth Rocks, New Hampshires, or Cross-breds.

If capon production is a primary objective, it might well be that White Plymouth Rocks are the best breed, since they are of a type which is readily adaptable to economical frame and flesh development. Specialized poultry meat producers in New Jersey have, from time to time, also favored the Jersey Black Giant, the Light Brahma, and various Cross-breeds in which Cornish blood has appeared. The Rock-Red cross males often appeal to meat producers.

The element of personal liking is not to be forgotten. Some poultrymen do better with a certain breed or variety of fowls because they personally admire and enjoy working with one type rather than another. It is to be observed, however, that personal likings for form, shape, pattern and color have to give way before the more utilitarian objectives.

## Consider Local Market

Some breeds and varieties of fowls possess special features which make them more acceptable and of greater utilitarian value in given situations. For example, if the local market prefers a white-skin fowl, it would be poor economy to grow yellow-skin breeds. The Light Sussex, the English breed of the white-skin type, appeals to poultrymen located where their markets demand white-skin broilers or roasters. Another example is to be found in certain sections of the east where markets pay preferential prices for "Barred broilers," in which case the Barred Plymouth Rock or the Barred Rock-Red cross fowls should be chosen.

Important in the selection of a breed is the breeding back of the available stock. In reality, there is much greater significance to differences between strains within breeds and varieties than there is between breeds and varieties.

### Utility Classifications

The present day breeds and varieties of domestic fowls may be divided into three groups.

**The egg type**, which includes the Leghorns, Minorcas, Anconas, Sicilian Buttercups, and similar breeds, embraces a group of fowls which originated in the Mediteranean countries and which have from earliest days been particularly adapted to egg production. Their general characteristics include small body size, tendency to tight feathering, rapid growth and maturity, non-broodiness, nervous active temperament, efficiency in transforming feed into eggs, prolificacy, and white-shell eggs.

These are characteristics which will avoid losses of time, which in turn, might increase costs of egg production. It is essential that egg producers be vigorous, prolific, precocious, intensive, and persistent layers, with little time out for broody periods or resting, such as during the molt.

**The meat type**, on the other hand, includes breeds which are characterized by a tendency to slow growth and development, sluggish disposition, broodiness, lazy temperament, capacity to turn feed into flesh rather than eggs, large body size, loose feathering, brown shell eggs, and improved flesh quality. Breeds of the meat type must be handled where the element of time and space can be provided without too great cost.

The well known meat breeds include the heavier strains of Rocks, Wyandottes, Reds, New Hampshires, the Brahmas, Jersey Black Giants, Orpingtons, Sussex, and Cornish breeds. The meat type is an extremely useful type of domestic fowl.

**The dual-purpose type** is a compromise between the extreme egg and meat types, a compromise in almost all of the characteristics above mentioned. In a word, dual-purpose breeds are those which are fair layers, fairly good growers, and efficient meat producers. In this group are to be included the average strains of Plymouth Rocks, Reds, Wyandottes, New Hampshires, and Sussex breeds.

An important warning to prospective poultrymen now choosing breeds consists of the advice that poultrymen should select breeds and varieties of fowls within the general type which best serves the purpose of the plant, and then keep the stock at hand strictly in line with the type chosen. Too often, there is a tendency to select a heavy meat-type breed for one reason or another and then proceed by trapnesting and other methods to try to make an efficient layer out of it. Much time and money could be saved if all poultrymen would adhere strictly to existing types and breeds of poultry and use each in the sphere of poultry activity for which they are respectively best adapted.

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## *Spring Egg Price Support Plans*

Extended price support for eggs during the coming spring season of heaviest production has been announced by the U. S. Department of Agriculture. Plans call for increased purchases of eggs during the months when supplies are greatest and prices normally lowest, with purchases during the months immediately ahead to support producer prices at least at the 85 per cent of parity level and, in addition, to prevent a disorderly seasonal price adjustment.

Since parity price levels reflect regular seasonal fluctuations in commodity prices, the parity level for eggs is lower in months of heavy production and higher in months of lighter production.

The plans for supporting egg prices during the next few months of flush production call for the following.

1. Make full use of virtually all of the production capacity of egg drying plants.

2. Inaugurate purchases of U. S. Wholesale grades of fresh shell eggs for school lunch, relief, and other immediate distribution purposes and for storage for subsequent distribution.

3. Make purchases of shell-treated export grades of fresh eggs later in the spring production season for storage until shipment during the fall months.

4. Continue, for the time being,

**Average U. S. Egg Prices, Actual and Parity, 1939-41**

| | 1939 | | 1940 | | 1941 | |
|---|---|---|---|---|---|---|
| | U. S. Farm Price | 85% of Parity | U. S. Farm Price | 85% of Parity | U. S. Farm Price | 85% of Parity |
| | Cents Per Dozen | | Cents Per Dozen | | Cents Per Dozen | |
| January | 18.8 | 23.0 | 18.3 | 22.8 | 19.7 | 22.4 |
| February | 16.7 | 20.7 | 20.2 | 20.7 | 16.8 | 20.6 |
| March | 16.0 | 18.7 | 15.4 | 19.2 | 16.4 | 19.3 |
| April | 15.5 | 18.4 | 15.0 | 19.0 | 19.7 | 19.3 |
| May | 15.2 | 18.2 | 15.1 | 18.7 | 20.1 | 19.3 |
| June | 14.9 | 18.2 | 14.4 | 18.4 | 23.2 | 19.0 |
| July | 16.5 | 20.2 | 16.4 | 20.7 | 25.6 | 21.8 |
| August | 17.5 | 21.9 | 17.2 | 22.3 | 26.8 | 24.1 |
| September | 20.6 | 26.2 | 21.0 | 26.2 | 30.3 | 28.6 |
| October | 22.9 | 29.4 | 23.7 | 29.2 | 31.8 | 32.7 |
| November | 25.8 | 33.0 | 26.2 | 32.7 | 35.5 | 36.8 |
| December | 20.5 | 29.9 | 26.8 | 29.4 | 34.1 | 32.6 |

limited purchases of export grades of eggs for immediate use.

"While we are pledged to support the producer price level at 85 per cent of parity, actually we have been supporting it at times at around 90 per cent of parity in order to encourage increased production when supplies were needed most," said Roy F. Hendrickson, Agricultural Marketing Administrator of the Department of Agriculture, recently. "The volume of eggs we expect to buy during the next few months of heavy production will be substantially larger than the quantity bought for Lend-Lease shipment and other purposes during the last few months."

From March 15, 1941, when the Department of Agriculture expanded its general purchase program to meet Lend-Lease and other needs, purchases of eggs by the Surplus Marketing Administration through January 17, 1942, totaled the equivalent of more than 8,400,000 cases, or over 252,000,000 dozen. This included purchases of 48,671,615 pounds of dried eggs, representing nearly 5,000,000 cases of eggs in the shell; 66,189,370 pounds of frozen eggs equal to nearly 1,800,000 cases of shell eggs; and 1,675,279 cases of shell eggs. The f.o.b. cost of all eggs bought to January 1, 1942, exceeded $79,000,000.

—U. S. D. A. News Release, Jan. 22, 1942.

## *Care of Metal Waterers*

The following recommendations are made for the care of metal waterers by a leading producer of sheet metal for use in poultry equipment.

1. Place waterers where they will not tip over.

2. Don't let water freeze in the fountain—this puts undue stress on the seams.

3. Set waterers up off the ground to keep out dirt and to permit air to circulate beneath them and keep the bottom dry.

4. Clean and dry frequently. This permits the formation of protective zinc salts which retard corrosion.

5. Clean regularly so that metal will not have to be scraped. Scraping may injure the protective zinc coating.

—Everybodys Poultry Magazine, February, 1942.

CHARGED with wasting an egg, Henry Jones (18), a vanman of Lemington Street, Sunderland, was fined 10s. He had been throwing eggs up and down, "to pass the time," and allowed one to drop, which was wasted.

—Modern Poultry Keeping, London, England.

# POULTRY RESEARCH

### How Incubation Affects Vitamins

Workers at the University of Texas have made a very interesting study of what happens to the vitamins normally present in fresh eggs when those eggs are incubated. The vitamin content of fresh eggs of known weight was determined prior to incubation, and samples of eggs were similarly analyzed at three- or four-day intervals during the incubation period. Newly-hatched chicks were likewise analyzed for the same vitamins. According to a report in the Journal of Nutrition (Vol. 22, pp 483-489), the total amount of riboflavin and of pantothenic acid present in hen eggs did not change during the period of incubation, and the amount of biotin remained practically constant.

Nicotinic acid was found to be synthesized by the embryo, so that the amount present in the newly-hatched chick was 20 times that originally present in the unincubated egg.

Inositol likewise appears to be synthesized by the embryo.

Presumably, these synthetic powers are retained by the chick after hatching, suggesting that nicotinic acid and inositol would not be required in chick rations. The data reported do not afford an answer to whether the synthetic powers of the chick are sufficient to supply these nutritional factors in the amounts necessary for optimal or maximal growth.

—L. E. Card, Poultry Tribune, February, 1942.

### Temperature and Fertility

There was no relationship between the temperature outside the poultry house and proportion of eggs laid that were infertile in a study made at Cornell University by W. F. Lamoreaux, according to a report in Poultry Science (Vol. 21, No. 1).

When housing is adequate to prevent injury from freezing of combs and wattles, insulation and heat cannot be expected to improve fertility. Dubbed males were used in the studies, and it is suggested, therefore, that the prevention of frost injury by this means may be responsible for significantly increased fertility.

### Save Chicks that Hatch First

At the Massachusetts Agricultural Experiment Station, a study was made of the length of incubation period of nearly 5,000 Rhode Island Red chicks in an attempt to determine whether such a measure could be used as a criterion of the future performance of the chicks. According to Massachusetts Agricultural Experiment Station Bulletin 384, some of the conclusions reached were:

Length of incubation period was not affected by weight of eggs.

Length of incubation period fluctuated over a period of about 56 hours during the normal hatching season, with a tendency toward slightly shorter periods in the earlier hatches.

Females predominated in the early emerging chicks.

Mortality rates to six months of age increased consistently as the length of the incubation period increased, but this relationship failed to hold after the pullets reached laying age.

There was a consistent decline in mean winter egg production and in annual egg production as the length of the incubation period increased.

No relation was found between length of the incubation period and body weight of pullets at six months of age or at the end of the first laying year.

There was no conclusive evidence that the length of the incubation period is governed by hereditary factors, but selection of early emerging chicks appears to be of considerable economic importance as a practical procedure.

—L. E. Card, Poultry Tribune, February, 1942.

## Sulfanilamide Controls Pneumonia and Eye Infections

D. E. Lathamer, Louisville, Ohio reports the successful use of sulfanilamide, a drug prescribed in the treatment of many human diseases, in a number of cases of fowl pneumonia and some types of eye infection. He reported that in most cases the birds fully recovered within 24 hours after treatment and showed no unfavorable after effects.

—The Feed Bag, December, 1941.

## Sulfathiazole Controls Coryza

At levels of 3/16 gram of sulfathiazole per ounce of mash, the development of symptoms of coryza in artificially inoculated birds was prevented in tests carried on by Frank S. Schlenker, John P. Delaplane, and H. O. Stuart of the Rhode Island Agricultural Experiment Station, says their report in the American Journal of Veterinary Research (Vol. 2, No. 5).

Since but eight birds were used in the study, and no tests have been made to determine how the method of control works out under practical conditions, use of sulfathiazole in combatting coryza on the farm is not to be recommended.

## Vitamin $B_1$ and Paralysis

A deficiency of vitamin $B_1$ may lead to a paralysis in chicks resembling Chastek paralysis in foxes,

report A. I. Coombes, E. H. Spitzer, and W. Wisnicky of the Wisconsin Agricultural Experiment Station in What's New in Farm Science (Bul. 453).

The disease is troublesome only when raw fish makes up a considerable part of the ration, and since such a ration is not found under farm conditions, the research is significant to poultrymen only in that it has been established that fish contains a substance which destroys vitamin $B_1$ or interferes with its utilization.

## Choline Prevents Slipped Tendon

Another cause of slipped tendon, entirely separate from the commonly-recognized manganese deficiency, is a shortage of choline in the ration. D. M. Hegsted, R. C. Mills, C. A. Elvehjem, and E. B. Hart of the Wisconsin Agricultural Experiment Station report in What's New in Farm Science (Bul. 453) that choline-deficient rations produced a slipped tendon disease showing the same external symptoms as that produced by rations high in calcium and phosphorus and low in manganese.

Growing chicks evidently need about 0.1 per cent choline in their rations. Turkey poults may need as much as 0.3 per cent choline. It is suspected that many rations contain border-line quantities of the vitamin. Dependable sources of supplementary choline for use in poultry rations have not as yet been found. Presumably, it is found in meat, milk, fish, and whole grain.

## Vitamin $B_6$ Important for Chicks

Vitamin $B_6$ is far more important in chick rations than has been suspected in the past, report D. M. Hegsted, G. M. Briggs, R. C. Mills, C. A. Elvehjem, and E. B. Hart of the Wisconsin Agricultural Experiment Station in What's New in Farm Science (Bul. 453).

Rations deficient in vitamin $B_6$ will result in emaciation (through lack of ability to utilize feed) and, finally, death. Best known sources of the vitamin are meats, fish, molasses, and wheat germ, with fairly good amounts being contained in whole grain and milk.

## Chicks Require Inositol

Inositol, a B complex vitamin, has proved to be a growth-promoting factor for chicks, report D. M. Hegsted, G. M. Briggs, R. C. Mills, C. A. Elvehjem, and E. B. Hart in the Wisconsin Agricultural Experiment Station's What's New in Farm Science (Bul. 453).

Lack of inositol has resulted in slow growth in experiments carried on up to the time the report was made. Further research is now in progress and rations purified of inositol will be used to ascertain whether or not diseases may be caused by a lack of the vitamin, and if it has any practical importance in poultry nutrition.

### Chicks' Urea Utilization

Chicks did not utilize urea in test rations, even those which supplied a readily soluble carbohydrate, report C. M. Bice and L. A. Dean on studies carried on at the Hawaii Agricultural Experiment Station, in Poultry Science (Vol. 21, No. 1).

Ruminants have the ability to convert this low-cost high-nitrogen supplement into available protein, but work by these and other investigators indicates that poultry are not able to make the conversion.

### Protein Requirements

Protein requirements of chickens have been studied at the New Hampshire Experiment Station since 1935. Raising the protein level from 15 to 19 per cent resulted in a definite increase in weight gains. When used as the only source of animal protein, fish meal proved superior to dried milk or to meat scraps for growth as well as for production.

The amount of protein, as used in these tests, had no influence upon egg size, nor on the age at which the first egg was laid. Fish meal, however, tended to bring about earlier sexual maturity. An improvement in gizzard erosion was observed with an increase in protein content of the rations, except in the case of milk. With increasing amounts of milk, this problem was aggravated progressively according to the report in New Hampshire Experiment Station, Bulletin 330.

—Carl H. Schroeder, Everybodys Poultry Magazine, February, 1942.

### High-Quality Protein Promotes Good Feathering

Poor feathering may be caused by a deficiency of the amino acids arginine and glycine, found in high-quality protein feeds, report D. M. Hegsted, G. M. Briggs, Jr., C. A. Elvehjem, and E. B. Hart of the Wisconsin Agricultural Experiment Station in What's New in Farm Science (Bul. 453).

Leghorns, which are rapid-feathering, seemed to require more arginine and glycine than did slower-feathering Plymouth Rocks. The amino acids mentioned not only are concerned with feathering, but are related with the formation of body tissue, particularly creatine, a muscle constituent which may be needed to prevent paralysis.

### Preventing Damp Litter

The damp litter problem has been studied by the Massachusetts and New Hampshire Experiment Stations. For some years, it has become the increasing practice to build up the depth of litter before cold weather sets in, rather than provide a scanty layer which is frequently removed. The deep litter system usually works well, when a generous depth of 5 inches or more is accumulated before the end of November. That is, before the amount of sunshine, temperature, humidity and moisture-carrying capacity of the air are near the winter level.

The Massachusetts Experiment Station has demonstrated that the success of the deep litter practice is at least partly attributable to the generation of heat due to fermentation. It is the same principle which operates in horticultural cold frames. Fountains should be so constructed and arranged that water spillage is reduced to the absolute minimum. Scattering small amounts of grains in the litter every time one enters the pen induces the birds to scratch and to stir up the litter, thus helping to dry it. "Always try adding more litter first before changing it," is the final recommendation (Featheredfax, Vol. 12, No. 11).

Spading and raking peat litter for the purpose of drying more rapidly had no effect on feed consumption or production. In the pen receiving the best litter treatment, the mortality was lower, but the difference was small and might not have been attributable to the management of the litter. Improvement in the condition of the litter was effected by measures designed to reduce spillage of water and by improving drainage about the building, relates New Hampshire Bulletin 330.

—Carl H. Schroeder, Everybodys Poultry Magazine, February, 1942.

## *Management of Breeding Toms*

No matter what kind of turkeys you keep or how good they are, unless you get fertility, your birds are worse than worthless. There is nothing more discouraging to a breeder, a hatcheryman, or a customer than to candle out a lot of clear eggs. In the success of a turkey project, you are licked right at the start unless you have turkeys to work with—and you cannot get turkeys unless you have fertile eggs.

A great deal of the fertility depends on management. Feed, range, shelter, the weather and the vitality all enter into the picture, but the actual handling of the birds has a lot to do with it also. You cannot very well change a big flock of hens from range to range without interfering with the egg production, even if you have the fenced range available, so the bird management rather confines itself to toms, at least as far as the actual handling of the birds themselves goes. The whole thing is management, for that matter, but here we want to outline some of the methods of running breeding toms.

One other thought should be carried in mind, with the prevelance of Broad Breasted Bronze blood in most of our present-day flocks. Before the Broad Breasted came so universally into the picture, low fertility was quite often due to impaired vitality of the breeding stock, and it became a saying that poor hatchability always followed poor fertility. With the Broad Breasted, generally speaking, this is not the case. There seems to be no evidence of low vitality in the Broad Breasted males and where low fertility is in evidence it is generally due to an actual lack of physical contact.

### A Simple System

Let us consider the different methods of running toms. The most common method is simply to turn out 10 toms to 100 hens and keep them in flock for the entire season. This is the most simple manner of handling the birds, and quite often works just as successfully as more complicated methods. We know of one grower who followed this method last spring with 100 head of Broad Breasted toms and averaged 90 per cent fertility during most of the season.

A variation of this method is to turn in a flock of early hatched toms around November or December and then in the late winter or early spring, depending on the climatic location, sell these toms and turn in another flock of later hatched and more ambitious birds. Those who follow this practice claim it greatly helps late season fertility.

### Alternating Males

Still another method is to turn in around 10 toms to 100 hens until the hens all get bred for the first clutch, then take out about half of the toms, rest them for varying periods ranging from three or four days to two weeks, and then for the balance of the season alternate the two flocks of toms in the laying flock.

Several years ago, quite a few breeders made individual "cribs" for the toms, pens where the toms were confined singly, but with a number of openings where the hens could go in or out of the different tom pens. This prevented interference in breeding and worked quite satisfactorily where the hens had to go in with the toms to get feed and water. Otherwise, the females did not go into the tom pens freely enough.

Where toms are run in a large flock it is quite common for the caretaker to work with a long pole among the birds in early morning and late afternoon, preventing interference. These are the two times a day of most frequent matings.

Other growers, with smaller flocks, work with the birds almost constantly and remove a tom from the pen and substitute another whenever there is a successful mating. Under this practice a tom may be put in and taken out of the flock two or three times a day. Naturally, the labor cost here is excessive.

### General Suggestions

There are a few underlying practices common to all successful growers. One is to put the toms in as early as possible in the fall. Where heavy birds are being used, the toms need to learn how to properly handle themselves before heavy breeding begins. Another is to have plenty of toms. Some authorities claim as few as five toms to 100 hens are necessary, but most of the better egg producers keep at least double this number, and some retain as many as 20 to the hundred.

When the toms are removed from the flock, to be later returned, they should be kept some distance from the laying flock, out of sight and sound if possible. It is remarkable how a lot of toms will eat and put on weight if they are thus entirely separated for a few days.

—Norbest Turkey News, January, 1942.

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## Argentina Sets Up Egg Drying Industry

Because of reduced exports of shell eggs, resulting from a shortage of ocean shipping, Argentina is setting up an egg-drying industry. One plant with a daily drying capacity of 1,000,000 eggs was opened on November 17. A second plant will be ready for operation in March, and plans for a third plant are under way.

Britain's need for food in a form that can be easily transported and stored is given as the main reason for the new development. The shipping shortage forced the United Kingdom some months ago to stop its large imports of shell eggs from Argentina. Argentina then turned temporarily to the United States as an outlet for its surplus fresh eggs.

With egg-drying plants, Argentina will be able to resume its egg export trade with the British market. Argentina normally produces around 95 to 100 million dozen eggs annually, of which 10 to 20 per cent usually are exported—mainly to the United Kingdom—as fresh eggs. The Southern hemisphere spring months of September to December are the period of heavy production.

Indications are that Argentine egg production will be expanded this year because of the British demand for dried eggs. The United Kingdom already has indicated that it will be in a position to accept large quantities of Argentine dried eggs.

—U. S. D. A. News Release, Jan. 24, 1942.

# My Early Poultry Experiences

By **JAMES E. RICE**
Mexico, N. Y.

*Condensed from American Agriculturist*

MY earliest recollection of the poultry industry is a fight with a kid companion in a suburb of Chicago, Ill., where I lived in 1871. He was throwing stones at a brood of little ducklings which needed my protection.

Memory next recalls daybreak on the farm of my grandparents at North Granville, N. Y., where I was thrilled at listening to a glorious barnyard symphony. Even now, after nearly 70 years, I can recall the tumultuous calls for breakfast of all the large chorus of farm animals—horses and colts, cows and calves, pigs, sheep, dogs and cats, as well as chickens, ducks, geese, turkeys and guineas (for my Grandmother Wing was a highly successful poultrywoman).

Grandmother had learned by personal experience the most practical methods of making money with poultry. I was her enthusiastic youthful disciple and helper. It was a proud day in my young life when I won a generous reward by finding, after several days' effort, a long-sought turkey's nest carefully hidden by a stone wall.

Each day it was my coveted responsibility to gather the eggs. Since the hens had free run of the farm to lay their eggs and to roost, they matched their nesting instincts against my ingenuity in finding their nests. As a result, they won often enough to provide a supply of eggs varying in quality from "nearby fresh" and "new laid" to "bloodshot" and "explosive," or perhaps an indulgent mother won and proclaimed her triumph by proudly leading forth a fine brood of chicks.

There was one place on grandfather's farm, however, where the hens especially delighted to steal their nests. This was through the loose foundation wall under a wing of the barn. Many a time I crawled on my stomach to a nest and brought forth a hatful of eggs. I have not, to this day, been able to understand why so many good farmers, like my Grandfather, never plugged up the hole under the barn.

After more than 50 years' absence from the old farm, I recently visited the scenes of my childhood. One of the first of many places I sought out to photograph was the hole under the barn. But I was deeply disappointed to find that fire a few years before had destroyed the proof that the hole had never been closed during several changes in ownership of the farm.

American Agriculturist, Savings Bank Bldg., Ithaca, N. Y.
American Agriculturist, Jan. 3, 1942

But I did take a photograph of the place where I used to take delight, strange as that may seem, in following the example of my Grandmother in ducking broody hens in the watering trough to break up their persistent motherly habit.

## Holding Hatching Eggs

Grandmother did understand and practice certain sound principles, for each spring, as we gathered the eggs for hatching, they were carefully placed in pans resting on the cool flagstone cellar bottom, with separate pans for the goose, duck, turkey and hen eggs. Each pan contained a flannel cloth, which formed a soft cushion and also covered the eggs to prevent evaporation and germination. All eggs were turned each day. Now modern egg holding rooms provide proper humidity, controlled temperature and, occasionally, automatic turning devices. Yes, Grandmother was right in this instance and acted according to her light, which was the best light that we knew in those days.

A few years later, while living with other relatives, it became my regular chore to help my Aunt Alice with her poultry. One of the all but universal beliefs then held by poultrymen was that long eggs produced cockerels and the roundish eggs produced pullets. Well do I recall the care which we exercised each spring in selecting eggs for hatching, saving the roundish eggs for replenishing the laying flock and sending the others to market or consuming them at home.

Did we ever notice any preponderance of pullets resulting from this system of selection? No, not that could be observed, but over a period of many years of this erroneous method of selection, a quite logical result occurred. The eggs from our farm flock acquired a real reputation at the local store for being the roundest eggs brought to market.

The practical consequences of this practice double-check exactly with our present day knowledge of poultry breeding. Now we control, to an exact degree, through trapnesting, pedigree hatching, and progeny testing, not only the shape of the eggs laid, but also their color, size, shell texture, number of eggs laid per bird, and quality of the offspring.

## Early Egg Grades

At that time no attempt was made anywhere among the farmers to influence the color of the egg shell or the egg yolk, and eggs were supposed to have but two eating qualities—they were either good or bad. So far as the sale of eggs was concerned, they were sold "as is" when picked up, at more or less regular intervals, by the itinerant tin peddlers; or taken to town, packed in baskets of oats to help prevent breakage when transported over the rough dirt roads to the local store. Here they were allowed to accumulate until there were enough to pack in crates to be shipped to market.

Gathering eggs several times a day or pre-cooling and humidifying them in egg rooms was not even anticipated in those days. Nor were there automatic egg grading machines and candling devices; rubber tired trucks rolling along smooth surface roads each day to the express office or receiving station; official inspecting services; nor schools to teach poultry keeping. What a violent contrast then and now in the production and sale of one of man's most valuable food products — eggs!

### Origin of Crossbreds

Much the same can be said about the production and sale of poultry for food in the past half century. In those earlier days, the common barnyard fowl of the country was a composite of the largest possible variety of the comparatively few breeds then known. They were crossbreeds to the n'th degree. They wore their pedigrees (or rather, unknown ancestry) on the outside of their bodies in their varied colors, sizes and shapes, and in their fighting qualities. For the most part, their longevity was maintained according to the natural law, "survival of the fittest," since very little knowledge of the age of fowls was possible. This was due to the fact that trapnesting, leg banding, and progeny testing were unknown as applied to egg and poultry production.

Only a few enthusiastic poultry fanciers were responsible for improving the appearance of the breeds of poultry and developing new varieties. All honor to these breeders since they had neither scientific knowledge of the principles of breeding now available, nor the necessary equipment.

At that time, there was no successful poultry breeding or egg farms or commercial hatcheries. Hen hatching was one of the bottlenecks which restricted the expansion of poultry-keeping, limiting it to a one-man or one-woman side-issue farm flock. This serious handicap awaited the coming of modern methods of equipment and management and of artificial incubation and brooding, which provided two of the movements to the combination lock which opened the way to building our present billion and a quarter dollar poultry industry.

### Hail the Trapnest

Another key of equal importance was the discovery and perfection of the trapnest, which has revolutionized poultry breeding by providing, for the first time, an accurate method of knowing the egg-producing values of individual hens and of their offspring, thus establishing their hereditary relationship.

This was a breeding factor which had been used in breeding other classes of livestock, but not with poultry, because of their small size and difficulty of identification. Hence, pedigree breeding and progeny testing opened the flood gates to mass breeding for production, which has slowly raised the average egg production per bird, lengthened the average life of profitable production, improved egg and meat, quality, fertility and hatching power, and the beauty of the birds. This advancement has been epoch-making in the history of the poultry industry, and proves the mastery of man in handling the forces of nature.

### Importance of Housing

Of nearly equal importance in the evolution of the poultry industry have been scientific discoveries in the construction and management of poultry buildings. The same may be said of revolutionary advancements in our knowledge of feeding.

Within the memory of the present generation, we have seen unfolded, through scientific research, the whole field of feeding poultry balanced, special-purpose rations, including minerals, vitamins and other essential qualities, and the wholesale manufacture of these rations. Thinking back to the early days when "corn meal dough" and skim milk were the standard feed for raising chickens, and when corn, oats and buckwheat were the almost exclusive feed for the laying flock in northeastern states, one marvels that such sensational improvements could have taken place in so short a time. It should be recalled, however, that the saving grace in feeding poultry of all classes in early days was the fact that the flocks were comparatively small and, for the most part, enjoyed the wide, open privilege of the farm. This provided an abundant supply of green feeds, insects, worms, seeds and waste grain.

As might be expected, mass production and labor saving confinement methods have brought grave mortality problems, which must, and no doubt will, be met by scientific investigation and the adoption of more rational methods of management. The vitality of our breeding flocks, which supply the seed bed for renewing the new life-producing power of poultry everywhere, must be conserved.

It is a great privilege to have been permitted to live in this glorious age of advancement in the poultry industry.

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ONE pound of biotin, most recently isolated vitamin of the B-complex, is valued at $62,500,000. It was reported that the first gram and a half of biotin made required **the chemical treatment, by a complicated process, of 40,000 pounds of dried egg yolk.** —Lorraine L. Engel, U. S. Egg and Poultry Magazine.

# Diary of a Poultryman

By PERCY S. WHITE
Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**Feb. 1** — Donnie was home today, Saturday, and we did more work than one can shake a stick at, as the old saying goes. All the boards were cleaned by noon. Right after dinner, Donnie went with Harold to the Fike farm to spread it. They were back by 2 o'clock, and that was in plenty of time to go for a load of shavings. The Old Man, that is me, did the regular work, washing the fountains, gathering eggs, and feeding the night grain.

The birds sure do go for corn which has been soaked in milk for 48 hours. As the days get longer, the grain is fed later in the afternoon. Naturally, the birds get hungrier, and they sure do swarm around the feeders.

**Feb. 3**—Well, this laying stock of mine is on the up and up in production. They are just about where they were this time last month. That was before the January blizzard struck these parts. After that the birds didn't lay quite so well. Guess they had their ears knocked down; at least I did when I saw the egg check. I sure do have a sinking sensation when I can hardly see the amount on the check.

**Feb. 4** — The Old Man is getting old; just can't take it any more. Extension Poultryman Ferguson and I made talks in the high school auditorium at Millersburg last night. I got away with the talk in good shape before about 200 in attendance. Afterwards, I ate a few ham sandwiches and drank a cup of coffee. Then I got in an argument about interior egg quality with some of the folks, and drank a couple more cups. Ralph Treat and I chewed the rag at the egg auction until 12 o'clock. There wasn't any use in going to bed, so I packed eggs until 2 a.m. I went to bed, starry eyed, with the old brain buzzing like a bee hive. When the clock struck 5 o'clock, I was still wide awake. The moral is that a little country boy like me can't drink coffee at night.

**Feb. 6**—I have never seen it snow any harder in my life than it did today. Three to 4 inches fell in a very short time. All paths had to be recut. A path in a deep snow saves a lot of that tired feeling at night. I am glad there is a good roof on all of the buildings. With the rain that is now falling, much of this snow will be gone by morning. It is refreshing to know that a lot of it won't be in the litter.

Everybodys Poultry Magazine Publishing Co., Inc., Hanover, Pa.
Everybodys Poultry Magazine, February, 1942

I worked all afternoon scraping the feeder running boards and perches in the barn. It was time to give the perches a second application of lice killing dope. Of course, I had to get some on my hands. Then it got on my handkerchief, and the handkerchief got warm in my pocket. My nose feels about the size of a barrel.

**Feb. 8** — I really believe this has been the worst day of winter so far. This morning the temperature was down to 10° above, which isn't in itself very bad. But there was a wind blowing at 20 miles an hour, probably 40 miles, maybe 50 miles, for all I know. Great clouds of drifting snow were everywhere. All the boards were frozen so hard that we had to use ice hoes to loosen the droppings.

**Feb. 10**—I had to get out the old soldering iron today and work on the third floor fountain. Two "pits" had finally gone entirely through the bottom. Yesterday I saw water dripping from it, but after dinner, when Donnie and I went up to repair it, there was no drip. Often times condensation from the lamp is held back by dust in the lamp compartment. I thought this was what had taken place and that everything was hunky-dory. It is now, after we carried out 'steen tubs of wet litter.

Dave Harris, one of the paint company boys, tells me that he has a preparation that is heat and cold-proof, water tight, and won't crack, chip, or splinter. He is going to bring out a sample for coating the bottoms of the fountains to prevent pitting.

**Feb. 11**—It, the weather, is gradually warming up, becoming more mild. This morning the thermometer registered 10° above; yesterday it said zero. During the day the air is as balmy as in spring, but the nights are cold. I am wondering what the great change in temperature is going to do with production. From the bitter experience of the second week in January, I am shy of cold weather. Several producers have remarked about their slump in production following that January cold snap. The reports seem to indicate that birds around here can't take cold weather as flocks did a few years ago. I am getting the same way.

**Feb. 13** — The snow and ice are still here, and I have been slushing around in it all day. One step forward and two back makes me so tired I can hardly wiggle. All windows were opened, and we let the air and sunshine in the houses. The litter has been drier this year than for the last several winters. I think it dried a wee bit today, although one can't expect it to dry very much at this season.

**Feb. 14**—Late for dinner again today. Gates Vickers, Ralph Treat, and I held a conference about hatchability, interior egg quality, and the inheritance of thick albumen. As a matter of record, we got into an argument. When I finally did get home, Kid White and I had a real argument. The Kid says she doesn't like to get two dinners. I say I don't like to eat a warmed-over dinner. Kid White said if I would get home on time I wouldn't have to eat a warmed-over dinner. I said that if she would have dinner when I did get home, we would all have a hot dinner.

**Feb. 15**—All indications point to a cold night—a very cold night. The fountains have been filled with boiling water and all pipes drained. We are prepared for a blizzard if one should come. Fortunately, we were able to get all of the dropping boards cleaned and the droppings scattered, so we are safe on this score for a week. But this is all we did accomplish, aside from the regular work of feeding, gathering eggs, and what-have-you.

The windbreak of pine trees is beginning to take effect. It was planted about 12 years ago and is probably 15 to 18 feet high. The west end of the block house, nearest to the trees, is much warmer than the east end. The east end is next to the heating plant, too.

**Feb. 19**—The thermometer is at 4 below now, 10:00 p.m. I am afraid this is only the beginning. Fortunately, there is just a gentle breeze blowing and not a tornado. The houses are cold, and there is no question about it.

The weather man offers no encouragement. I have been in tight places before and sweat them out, but this time I guess I will have to freeze it out. Egg production is going to drop. If egg prices drop, it will be a calamity.

**Feb. 20** — Production didn't drop today, but it really isn't time for it to drop yet. The cards are stacked agin' me and I know it. If the egg is to be laid, it will be laid, but those in the process of being matured just won't be.

**Feb. 22**—With Donnie's help, we managed to get the cleaning done, but that was all. It was just one of those days often heard about and often experienced. There were two water fountain supply pipes to drill out, frozen, because the lamp wick became too short. I had a special drill made last fall to drill out frozen pipes. The drill is 3 feet long, made from drill steel rod, and fits in a brace the same as any other drill. The supply pipes are ⅜ inch and the drill is of quarter-inch material. It is sharpened to a fare-ye-well and goes through the ice like cutting hot butter.

**Feb. 24**—I vetoed Harold's suggestion that the block house pits be cleaned. Instead, we creosoted a few more range hoppers. Tonight is the poultry school, and, as we both are going, I felt that we shouldn't get in a pinch with the work. When supper is at 6 o'clock, it is quite a rush to get shaved, put on store clothes, and get to the auction building by 7:30.

**Feb. 25**—Max Drake, superintendent of the farm of Louis Bromfield, Ohio's famous author, was the practical poultryman on the program last night.

Max has been making the grade of U. S. Specials with his eggs for so long that we wanted him to tell us about it. "Fergie" laid the egg, to use his own words, that is, he gave a picture talk of ovulation. Ray Wiseman, our Federal-State inspector, gave a description of the various grades.

**Feb. 26**—The pit in the east end of the block house is cleaned and the droppings spread. There were practically two trailer loads, but Harold decided he could put the bedding from the cows tonight and tomorrow morning on the second load. So I really should say that only half of it is spread. This, however, is a small matter. The point is that the pit is cleaned.

When one uses pits, it is an easy matter to let them go too long before cleaning. These went for eight weeks, which I think is plenty long enough. Some day I hope I will be able to make up my mind as to which I like the best, pits or dropping boards. Each has its good points.

**Feb. 27**—Two of the fountains, the ones that were beginning to pit, have been given a couple of coats of Dave Harris' new water-proofing compound. It is a heat and cold-resistant preparation, and Dave feels sure that it will stop all rusting and pitting in a galvanized water vessel. If it works, it is going to save me several dollars a year.

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## *What's the Best Brooder House?*

Insulated brooder houses of either plywood or the conventional frame type, equipped with a so-called "brooding chamber" over an electric brooder, proved satisfactory during the winter of 1940-1941 in tests at the University of Wisconsin.

In this investigation, four types of brooder houses were compared. Since all of them were equipped with identical brooders, and were operated side by side throughout the same period, the findings should constitute reliable evidence on the merits of such houses.

One house was of the usual frame

construction, but well insulated. Shiplap was nailed under the floor joists, and 4 inches of shavings placed between the two floors. An insulated false ceiling was placed 24 inches above the brooder, and the house walls forming two sides of the brooding chamber were insulated by placing shavings between the walls.

A second house was insulated in the same way, but was built of ⅝-inch plywood. The plywood was of a new type made with waterproof glue – an important point, because ordinary plywood will not stand up outdoors.

Houses 3 and 4 were uninsulated, one made with ordinary frame construction and the other of plywood.

The trials show ⅝-inch plywood has very little advantage over ordinary lumber from the standpoint of holding even temperatures and of keeping down the amount of electric current needed to heat a house. Plywood does make possible a lighter house, which is somewhat easier to move.

Insulation has little advantage in mild spring weather, and may not save quite enough current to pay for itself even in winter; but considering both the current it saves and the extra comfort it provides for chicks, it seems to be very worthwhile for winter chicks.

Current consumption from January 2 to February 13 was 510 kilowatt hours in the uninsulated frame house, in comparison with 400 in the insulated frame house and 387 in the insulated plywood house.

Sensitive thermocouples showed that temperatures were very uniform under the brooders in insulated houses, but less so in uninsulated houses. Uninsulated floors were cold, indicating that a good deal of heat was lost through them, and chicks could be warm on their backs and cold on their feet at the same time. The litter usually remaine dry on insulated floors, but became wet on uninsulated ones because they were cold enough to condense moisture from the damp air under the brooders.

Lack of a brooding chamber resulted in colder temperatures near the outside walls than under the center of the brooder, limiting the area where chicks could be comfortable, and in effect reducing the chick capacity of the house.

—What's New in Farm Science, University of Wisconsin Bul. 453, December, 1941.

THE ceiling of a laying house at the Evan Busse farm in LeSueur county, Minnesota, is low. To keep a tall person from bumping his head against light bulbs, lengths of rubber hose are bent to U-shape and ends nailed to ceiling to serve as warning guards.

—Capper's Farmer.

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# VIEWS OF THE EDITORS

## The Hen Enlists for Victory

The egg is one of the principal materials of war. It can build military and civilian strength and morale, both necessary for victory.

It is easily digestible. It is nonfattening. It is strengthening. It gives women a beauty of brightness and vivacity which no cosmetic can equal. It gives men life, well-being, strength.

We salute poultrymen who are doing a great job for victory.

They are doing it at somewhat of a disadvantage because feed costs have gone up faster than egg prices.

To the consumer we are glad to say that eggs are not high. They are low in price, compared with most other things – high only in quality and health value.

The hen sings at her work.

That's the real spirit of victory.

—Pacific Rural Press, Jan. 24, 1942.

## Blowing Economic Balloons

About 25 years ago, we were blowing up a big economic balloon that had about the same anchorage as the balloon we are blowing up today. We blew and we blew. We were sure it couldn't burst. Money flowed freely for everyone but the farmers. Those who had it were called bankers and captains of industry. Those who didn't have it were mostly farmers. So the bankers loaned money to the farmers to buy more farms. Farm values were dreadfully inflated, and in case you don't know for sure what inflation means, it means high priced – plenty high priced.

Banks loaned farmers more than the true value of the farm, and the farmer bought the farm at maybe twice its real value. That's what we called "blowing up the bubble" or "balloon."

Well, it finally popped. And everything flattened out. That's what we call deflation.

Yes, sir, it flattened everybody–some more than others. But the farmers were at the bottom of the heap. They couldn't move until everybody else sort of got hold of themselves and were able to climb off the heap under their own power. By the time everybody else had more or less leisurely gotten off the pile, agriculture was thoroughly winded.

All through the prosperous (for everybody but the farmers) twenties, agriculture was struggling against terrific odds, trying to vulcanize the awful hole that was blown in its balloon, while everyone else was talking of skyrocketing stock markets and fabulous dividends and a lot of other things that would make the blood of any struggling farmer boil. And before he actually got his wind and had struggled to his feet—bingo — and another balloon went flat. That was in 1929.

Here we are blowing up another balloon. Unless we learned something in 1920 and 1929, we'll have another similar story to tell in three or four or five years. But since 1920 farmers have learned a lot of things. Since 1929 they have learned still more. Among the things they've learned are these simple truths:

The time to pay your debts is when good prices are being paid for the commodities you produce.

The time to build reserves is when you are being paid a little over the usual price.

The time to think in terms of buying new land or new equipment is when it is available at low prices—never at inflated prices. That's just common sense.

—Utah Poultry Cooperator, January, 1942.

## Two Eggs on Every Breakfast Plate

Two eggs on every breakfast plate is impossible now in Britain. Eggs are rationed there at one a week. So Prime Minister Winston Churchhill's greatest treat during his recent visit to the White House is reported to have been the two poached eggs which appeared on his breakfast tray.

Uncle Sam has been placing great emphasis on the high nutritive value of eggs as a protective food. He tells us that for our health's sake, we Americans should eat 35 per cent more eggs than we are eating. And American poultrymen can produce them without difficulty.

Let's coin as a war slogan, then, "Two Eggs on Every Breakfast Plate." It takes strong, healthy people to win a war. Eggs are a health food of which we should eat more in girding ourselves for the war job facing us and the peace job to come.

—Nulaid News, January, 1942.

## Keep 'Em Laying

That significant slogan, "Keep 'Em Flying," now has "Remember Pearl Harbor" to keep it company. We shall "Keep 'Em Flying" and we shall not forget the Arizona, the Oklahoma and any other ships destroyed by Japanese treachery.

American poultry producers might well adopt another slogan, "Keep 'Em Laying." Billions of dozens of eggs must be processed and shipped to the Allies dependent upon us for food. Compact and nutritious, the fruit of the hen in vast volume can have much to do in bringing the fruit of victory. Never before was there greater need for culling, proper feeding, and proper housing. The loafer hen has no place in a farm poultry yard. If she can't or won't produce—off with her head.

There should be close co-operation between all poultry production agencies. Hatcherymen should forget their rivalries. Experiment stations and colleges should work together loyally and efficiently.

Perhaps we should have more poultry specialists in extension field work. Overworked county agents may again be required to sponsor culling campaigns. There is a sound economic as well as a patriotic reason for increasing egg production. Our job is food production, and the humble hen can be made to do her share.

—Missouri Ruralist, Jan. 31, 1942.

## Repair Every Farm Tool

This war that has been forced upon us will be fought in every furrow of your farm . . . in every hen's nest . . . in every milk pail . . .

It is time to keep our powder dry . . .

On the farm this means putting equipment in working order before time to use it. We cannot spare the skilled factory workers, nor the tools and supplies, to make much new farm machinery. But we can make a lot of used equipment serve Uncle Sam mighty well if we get at repairs now.

And this year let's really take care of tools. Paint, replace bolts and screws, oil and grease, and shelter machines from the weather. An European told his Yankee host that Americans had no idea how long their equipment should last because they usually treated it so badly it was rusted before it could wear out.

Well, let's show 'em! Repairs made now will help win this War.

—Eastern States Cooperator, January, 1942.

## Burlap Allocation

The first important wartime upsetting of normal routine in milling and the flour and feed trades comes with the order announcing allocation of all burlap inventories as well as new arrivals of burlaps, with accompanying restrictions upon sales both as to quantity and time of shipment and clear indication that burlaps for commercial packaging may shortly be wholly unobtainable.

Already bag manufacturers in every part of the country are under direct government orders, not only as to disposition of burlaps to commercial users but also in priorities use of their facilities for the making of the many millions of sandbags required for the prosecution of the war. It is, of course, a military secret as to whether these vast quantities of sandbags are for use at home or in foreign fields.

Unfortunately, the definite restrictions upon commercial use of burlap are accompanied by a definite shortage of suitable substitutes of heavy cotton cloth. On this account it is definitely in prospect that considerable substitutions of smaller packages for those now in use on shipments to large flour users, for export, and for millfeeds may not be far in future. Happily, the priorities which must be granted to food and feeds distribution insure the industries against anything more than inconvenience to which they readily can adjust themselves.

—Feedstuffs, Jan. 3, 1942.

### Chickens for Meat

Isn't it about time we stopped, took a long breath, and considered where we are and where we are headed in this chicken meat business?

Some folks say, "There is no poultry meat business; poultry meat is a by-product and what we get is velvet." Five years ago, I would have said that myself. But with the broiler industry that has grown up so fast, and which apparently is here to stay, can we still say that chicken meat is only a by-product?

For the highest egg production, we must have a bird with a definite, highly developed nervous temperament and the ability to consume a great amount of food and turn it into eggs. Is this the right temperament for producing meat at the lowest possible cost? Economical growth of flesh in any animal requires exactly the opposite temperament—a slower tempo and a less highly strung nervous organism.

Isn't the time here for some of our great poultry breeders, perhaps led by our scientists in the educational institutions of the country, to do some work on the development of a specialized type of bird for the production of meat?

We do not need any new breed for this. Any one of our general purpose or meat breeds, so called, could be made into just the type of chicken we want, by a little intelligent thought, selection, and breeding.

A strain lower in nervous energy, quieter in disposition and developed for the sole purpose of producing meat quickly and economically would be far less prone to cannibalism and all the ills that chicken flesh is heir to, and would produce more chicken meat at less cost per pound.

With the new and growing business in raising poultry for meat apparently here to stay, it's time for someone to do some poultry breeding, especially for the economical production of poultry meat.

—Cackle and Crow, January, 1942.

### Poultry in Scientific Research and Veterinary Practice

Because chickens are quick-growing machines, exuberant sources of human food, and the generators of a vast industry, they furnish a fertile soil for the study of nutrition. From ovum to adult is but a matter of days, and the production of an unparalled poundage of food a mere matter of months. With chickens as the "guinea pigs," there is no long wait. Their biomechanism is geared up and wide open for the gaze of the investigator.

As a consequence of this favorable combination, science and invention in hatching, brooding, housing, feeding, and disease control have brought out a splurge of printed material in the form of bulletins, pamphlets, and bound volumes which has to be winnowed. There is chaff to be separated from the grain, chickens having become such a prolific source for commercial exploitation. Poultry science has been an inviting field of investigation and its achievements are not discounted, but on the nutritional side, it is truly a file of many exaggerations. Experts and laymen have been confused by contradictions.

Through a maze of poultry literature, the poultryman is taught to trust almost everything to nutrition. Disease is artfully dodged in most of the literature he receives, regardless of the fact that it is the main menace to his enterprise. The veterinarian is not the community's source of instruction on the hygenic factors involved in poultry production. Salesmanship couched in the language of science by capable scientists has the floor.

The veterinarian is called upon to speak when chicks or chickens are perishing en masse—when it's too late to do much good. In stepping into the field of poultry practice, there is this obstacle to surmount. As things are today, the practitioner's best opening is cooperation with the experts in the field of poultry nutrition, thus aiding the poultry industry, the honest feed manufacturer, and himself.

—Journal of the American Veterinary Medical Association, January, 1942.

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## *Women and Young Folks Take Up Chick Sexing*

While the number of chick sexors has not been too plentiful in recent years, there is an acute shortage this year because many chick sexors are serving in our armed forces, alien Japanese chick sexors are barred from travel, and prejudice and distrust prevents full employment of American-born Japanese sexors.

Because of the shortage in manpower, women and boys and girls are being trained as sexors. The Interstate Chick Sexing Institute at Boone, Iowa, reports that a big percentage of its students is now women. Boys and girls 15 years of age and older have been found to adapt themselves readily to this training, and they soon become as expert as their elders.

# R.O.P. and the Progeny Test

By W. C. GOODSON

*Reprinted from Everybodys Poultry Magazine*

THERE is no rabbit to pull out of the poultry hat; no hocus pokus; no open sesame. There is plenty of good hard work, and with this the basis of management, there are good profits. Good chicks, good feed and feeding practices, and good management are well known terms. We have heard about these three things so long that it is a wonder more of us don't try them. We do have to try them for they don't seem to come to us without effort.

Good chicks mean good breeding, and good breeding means a lot of painstaking work. One aspect of good breeding is a good Record of Performance program. Notice, I have said a good R.O.P. program. Right here I want to say again something I have said many times before. R.O.P. is not a breeding program. It was never intended to be a breeding program. Record of performance work is a sharp edged tool that will help poultrymen if used properly. R.O.P. is no cure-all, however.

### R.O.P. Standards

In outline, here is what R.O.P. means. In order for a hen to qualify for R.O.P., she must (1) lay 200 eggs in 365 days, (2) the eggs must average 2 ounces each, (3) the bird must be of proper type and body weight for the breed, (4) the bird must be free from standard disqualifications, (5) the flock must be free from pullorum, and (6) the records must be made in trap nests and some disinterested official must regularly inspect the flocks and verify the records.

It is an unpleasant truth, and any breeder will tell you so, that every bird laying 200 eggs is not necessarily a good breeder because of this fact. Every year, we send hundreds of 200-eggers to the slaughterhouse because they are not good breeders. How do we know they are not good breeders? We know because we carry on a progeny test program. This is what is meant by a good R.O.P. program.

A breeder can breed R.O.P. birds by the thousands and not run any sort of a progeny test program. R.O.P. does not specifically call for any progeny test work, but good breeders know the value of the progeny test, and they use it. When R.O.P. work is carried on in conjunction with a complete progeny test program, you can be sure that the resulting chicks have something behind them. This something is the thing that puts the dollar sign in front of our billion dollar industry. The figures "1,000,000,000" mean little without the little "$" in front.

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Everybodys Poultry Magazine, February, 1942

Let's examine the R.O.P. requirements. (1) 200 eggs in one year. This is an attempt to establish production and is obviously important. (2) 2-ounce eggs. Here is an attempt to place importance on egg size. This, too, is important, for it costs no more to produce a dozen large eggs, and yet the dollar value is much greater. (3) Proper type and body weight and (4) freedom from disqualifications may be considered together, for both are factors that lead to an ideal bird. (5) freedom from pullorum is, of course, very important and is an effort to attack the disease problem. (6) Records made under impartial supervision show the willingness of the breeder to cooperate with an official agency and also his willingness to have his records open to inspection.

### Must Learn Worth of R.O.P. Hen

So far as the above points go, so good, but we must go beyond these points if we are to call ourselves breeders. After we have located the R.O.P. hen, we must find out what kind of a breeder she is. A bird that lays 200 eggs, or 250 eggs, or 300 eggs is worth nothing from a breeding standpoint unless she can transmit to her offspring the ability to duplicate her achievements.

R.O.P. has come in for a good bit of abuse at the hands of some really fine breeders. Many things these men have said are true. R.O.P. has limitations; it does sometimes hinder a real breeder because of its requirements; and it is used by some as an advertising stunt. But we can attack anything we wish and find things wrong with it. What the most vehement critics of R.O.P. have not been fair about is the fact that R.O.P. sets minimum requirements. R.O.P. has never said how far a breeder may go. This is up to the man himself. If he is conscientious and wants to do a thorough job, the sky is the limit. If he wants to use R.O.P. as an advertising stunt, he can do that too, but in the final analysis, the chicks will show him up.

### Progeny Records Tell the Story

R.O.P. says nothing about hatchability, livability, feathering, broodiness, winter pause, intensity, persistency, or early maturity. You and I know these things are important, and so does the breeder. The way to find out about them and improve on them is to run a progeny test. When this is done, there is no guesswork. We know by actual records what a given bird is worth.

There are several ways of running a progeny test. In my opinion, there is one best method. This method is expensive and, possibly, because of the expense, impractical for some breeders. But we have already spent quite a little if we are trapping and keeping records. A little more is only adding a small amount to our investment and is an added assurance of success.

### Keep Record on Entire Family

When we set out to select pullets for the progeny test, we first decide which families we wish to use. Once this is determined, we run the test on the entire family. By entire family I mean just that. We trap the poor birds along with the good birds, and at the end of the year, we select breeders on the basis of family average. Selection is made on a basis of many things, many of which do not enter into an R.O.P. program.

Such a progeny test system is, I think, the most accurate means of appraising a family. I should a thousand times rather have a family of 10 daughters averaging 180 to 210 eggs with all birds laying somewhere near the same number of eggs than to have a family of 10 daughters averaging 180 to 210 eggs with some birds laying 250 to 300 eggs and others laying only 140 to 150 eggs.

Unless we test entire families, we don't know all the facts. In the first case, which illustrated a complete progeny test, we would probably retain all the daughters since production would be fairly high. In the second case, a partial progeny test, we would cull the daughters showing poor production, and what would the result be? Why, we would automatically raise the average production on those daughters remaining and we would think we had something exceptional. So far as available figures are concerned, the second group would be better breeders, but so far as individuals are concerned, the first group would be way ahead of the second.

It is an old story. You can make figures do what you want them to . . . but you can't make birds do what you want them to. Science and genetics do this for you, not a sharp pencil. All poultry breeders are looking for the perfect bird. I don't believe anyone has ever found it. I don't believe anyone ever will.

### Production Isn't Everything

We have talked mostly about production in appraising a bird. I suppose the reason is that people want to know how many eggs a bird will lay. But production isn't all, by a long shot. There are other things of equal importance and each one gives the breeder more information.

Today, more than ever, the average poultryman must have better chicks. Chick prices are higher, feed is higher, labor is higher. To combat these increased costs, the poultryman must have stock that will produce more eggs, live better, and hatch better. R.O.P. may not be the answer, the progeny test may not be the answer, but surely a breeding program using the two has a great deal of merit.

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# A Review of Egg Legislation in the United States

By R. L. BUTLER, L. A. WILHELM, and R. B. THOMPSON
Oklahoma Agricultural Experiment Station

*Condensed from U. S. Egg and Poultry Magazine*

THERE is, perhaps, no other agricultural commodity which is so widely produced as eggs, nor one in which the grading and marketing are in such a state of confusion. The statute books of the 48 states contain egg laws of many types, varying from those of negative value to sound, constructive laws that are an asset to the industry.

Under an act of Congress approved March 3, 1933, official United States standards for individual eggs were promulgated. Few members of the egg trade have actually adopted these standards, but the industry in general has accepted them as the basis for state grades, laws, and certain voluntary marketing agreements.

### Administrators Varied

In Table 1 are listed the 48 states, the administrator for the law in the respective states, and the dates of the laws reviewed for those 42 states that have laws. One of the 42 states having state egg laws has no administrator, and for this reason the law has been ineffective the past eight years.

The oldest egg law still in effect dates from 1921. However, 91 per cent of the laws in effect January 1, 1941, were less than eight years old, 50 per cent of them only two years old, and since January 1, 1941, nine states have enacted new laws.

The officer or office of administration ranges from the State Quarantine Officer to the State Egg Board, with the administration in most of the states being vested in the Department or Board of Agriculture, or some of its officers. In three of the states, the administration of egg laws is in the hands of the State Board of Health.

In the matter of licenses, there is great confusion. License for dealers range from $1 to $5, but many states have no system of licensing. A license for candlers is compulsory in one state. Candling certificates are mandatory in 24 of the states. These take the forms of retailer invoices, official seals on the case, and candling certificates placed inside the case. Penalties for violation of the various laws are even more unique. In most states such violation is a misdemeanor and penalties range from $5 to $500. Two states omitted

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from their laws any penalty for violation.

### Size Standards Inconsistent

A comparison of the size standards and their designated names by states revealed that 22 states have provision for identifying their eggs by size. Only two states have designations for size which include special, large, medium, and small. In ten states eggs should be graded as large, medium, and small, while nine additional states provide also for a peewee size.

Twenty-four states (Table 2) specify, by legislation or regulation, standards of interior egg quality. All of these are based on the United States standards of quality for individual eggs. Fourteen states use the designations U. S. Special or Grade AA, U. S. Extra or Grade A, U. S. Standard or Grade B, and U. S. Trade or Grade C. Michigan, Wisconsin, and Iowa do not provide for grading eggs as U. S. Specials or Grade AA. Massachusetts, Minnesota, and North Dakota employ only two grades. New Jersey uses the terms "New Jersey Fancy," "Grade A," and "U. S. Standards;" Rhode Island grade designations are "R. I. Specials," "Grade Fresh," and "Graded Eggs," while Wyoming provides the grades of "Wyoming AA," "Fresh," "Held," and "Storage."

One criticism frequently made of most laws concerns their length. It has been suggested that in most states it would be better to accept the U. S. standards for individual eggs in their entirety and not incorporate all the lengthy definition and detail into law. Many states have followed this procedure.

### Poor Terminology

However, there are interesting definitions in some of these laws. For example, the Agriculture Code of Alabama, 1927, Section 93(a) reads:

"The term 'eggs' or 'fresh eggs' shall be used only for eggs that are sound, sweet, clear, full (not more than 25 mg. ammonia per 100 gm. of egg) and which have not been held for more than 14 days after having been dropped from the hen."

Colorado specifies that "the words 'eggs' or 'poultry eggs' shall include pullet and hen eggs only."

The Georgia Egg Classification Law, Section 1B, states:

"Fresh eggs, construed to mean eggs produced, which are neither partly nor wholly decomposed and which have not been cold storaged or processed."

Illinois provides the following definition: "Eggs are sound, edible, oval, reproductive bodies produced by the domestic hen . . ."

Perhaps such definitions are enlightening, but it is doubtful that any of them are entirely truthful or necessary from the viewpoint of the poultryman, the egg merchant, or

the educator.

Research work from many different stations the past decade has definitely established that eggs should be kept in a clean, cool, humid environment from the time they are gathered until eaten, and that eggs should be marketed frequently. This applies not only to the care of eggs on the farm, but also in the produce station, in the packing plant, enroute to the centers of consumption, in the wholesale market, and in the retail store.

None of these points is concerned with candling, but in turn each of

**TABLE 1—Egg Legislation, Administration, and Date of Law Reviewed.**

| State | Administrator | Date of Law Reviewed |
|---|---|---|
| Ala. | Board of Agriculture | Agri. Code, 1927 |
| Ariz. | — | June 1933 |
| Ark. | — | — |
| Calif. | Bureau of Feed and Vegetable Standards | 1939 |
| Colo. | Colorado Director of Markets | 1933-35 |
| Conn. | Department of Agriculture | 1939 |
| Del. | — | — |
| Fla. | Department of Agriculture | October 1939 |
| Ga. | Department of Agriculture | June 1935 |
| Idaho | Commissioner of Agriculture | 1938 |
| Illinois | Department of Agriculture | 1939 |
| Ind. | State Egg Board | March 1939 |
| Iowa | Secretary of Agriculture | 1935 |
| Kansas | Kansas State Board of Health | 1936 |
| Ky. | Board of Health | March 1926 |
| La. | Board of Health | 1921 |
| Me. | Commissioner of Agriculture | 1939 |
| Md. | Board of Agriculture | December 1939 |
| Mass. | Commissioner of Agriculture | April 1935 |
| Mich. | Department of Agriculture | 1939 |
| Minn. | Dept. Agriculture, Dairy and Foods | April 1937 |
| Miss. | — | — |
| Mo. | Department of Agriculture | 1940 |
| Mont. | Commissioner of Agriculture | 1939 |
| Nebr. | Department of Agriculture | June 1939 |
| Nev. | State Quarantine Officer | March 1927 |
| N. H. | Department of Agriculture | July 1935 |
| N. J. | Department of Agriculture | June 1940 |
| N. M. | Board of Regent | March 1939 |
| N. Y. | Dept. of Agriculture and Markets | November 1939 |
| N. C. | Department of Agriculture | March 1939 |
| N. D. | Poultry Improvement Board | March 1939 |
| Ohio | Director of Agriculture | February 1938 |
| Okla. | — | — |
| Ore. | Department of Agriculture | 1939 |
| Penna. | Department of Agriculture | October 1937 |
| R. I. | Agriculture and Conservation | July 1938 |
| S. C. | Dept. of Agriculture, Commerce and Industry | April 1933 |
| S. D. | Department of Agriculture | October 1939 |
| Tenn. | — | — |
| Texas | — | — |
| Utah | Department of Agriculture | 1933-1939 |
| Vt. | Bureau of Markets | July 1938 |
| Va. | Dept. of Agriculture and Immigration | 1935 |
| Wash. | Department of Agriculture | February 1933 |
| W. Va. | Department of Agriculture | November 1939 |
| Wis. | Dept. of Agriculture and Markets | September 1933 |
| Wyo. | Department of Agriculture | March 1939 |

them has been definitely established as affecting the quality as determined by candling, and, what is even more important, affects consumer preference. Are any of our egg laws cognizant of this fact?

The South Dakota Egg Law, Section 220,804, states: ". . a suitable and adequate place for accurate candling and for the proper handling of eggs which are intended to be used or sold to be used for human food must be maintained by every person engaged in the business of buying eggs in this state for resale or consignment."

At least six other states make recommendations which are rather vague concerning a proper place and proper equipment for candling and handling of eggs.

### "Shall be Kept Dry"

Another statement found in many laws reads, "Good eggs shall be kept in a cool dry place until sold or shipped." This, in spite of the fact that suitable humidity is equally important as the proper temperature. Surely, there is now available sufficient information to prescribe certain minimum requirements necessary to protect the inherently good quality of eggs.

To keep eggs clean, cool, and humid and to market them frequently need not necessarily be an expensive procedure. But too-frequently these points are preached to producers only. There are many other points of contamination along the route which eggs travel to market which might be controlled by regulation and proper supervision.

Dirty, stained, dusty, and wet cases and merchandise have been pointed at for years as a contributing factor to dirty eggs and possible contamination. It seems improbable that we shall ever be able to do away completely with used merchandise and cases, yet their extended use could be controlled. Dirty buying stations, grocery stores, candling booths, and even packing plants are responsible for much of the uncleanliness of some eggs. These are food processing plants and as such should and could be controlled.

It has been known for years at what temperature incubation starts in the egg. Recently, attention has been drawn to the effect on egg quality of high temperatures for relatively short periods of time. Yet little recognition in the form of refrigeration or cooling devices used in buying stations or egg packing plants has ever been granted this fact.

**TABLE 2 — Quality Standards For Eggs, as Designated by Various States.**

| U. S.<br>Special—AA<br>Extra—A<br>Standard—B<br>Trade—C | U. S.<br>Extra—A<br>Standard—B<br>Trade—C | Miscellaneous |
|---|---|---|
| California | Michigan | Massachusetts: |
| Colorado | Wisconsin | Mass. Special, |
| Connecticut | Iowa | Mass. Extra |
| Georgia | | Minnesota: |
| Idaho | | Grade A, |
| Illinois | | Grade B |
| Montana | | North Dakota: |
| Nevada | | Grade A, |
| New York | | Grade B |
| Oregon | | New Jersey: |
| Pennsylvania | | N. J. Fancy |
| Utah | | N. J. Grade A |
| Washington | | U. S. Standard |
| West Virginia | | Rhode Island: |
| | | R. I. Special |
| | | Grade Fresh |
| | | Graded Eggs |
| | | Wyoming: |
| | | Wyoming AA |
| | | Fresh, Held, |
| | | Storage |

While many of the better egg packers have the necessary equipment, it is surprising how many do not. How many stores keep their eggs in a refrigerated display case?

The egg basket of the United States in the flush season is either wet and muddy, or as hot as any incubator, and much more dry. Of course, the usual fear of molds and contamination at high humidities is true, but mold growths and bacteria seldom occur in clean surroundings. Simple, inexpensive humidifiers for farms and produce stations would not only lessen the problem of large tremulous air cells, but would assist in cooling the eggs.

There are several handlers other than the farmer who should be educated to move their eggs more frequently—the country point buyer with once-a-week pick-up service and no facilities for cooling or humidifying his eggs; the packer who has little or insufficient cooling and holding facilities for the flush season; and the store that buys eggs weekly and has no facilities whatever.

### Suggested Provisions

After reviewing the laws and regulations pertaining to eggs in the various states, and after studying the results of research in the care and handling of eggs, we have concluded that there are several recommendations that could profitably be inculcated in any legislation or regulations pertaining to eggs. Some of these, as given below, are being used by several states.

1. All eggs should be bought "loss off."
2. Ungraded eggs should be labeled as "unclassified eggs."
3. Eggs should be sold only as "unclassified" or by designated grade —either state or federal.
4. Eggs should be handled, packed, held, and sold in a sanitary manner.
5. All eggs should be cooled below 60° F. within 24 hours after purchase and maintained below that temperature.

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## *Chopped Straw for Poultry Litter*

During the winter the straw used for litter in poultry houses often gets quite wet and matted. Lester Peterson, young poultryman near Santa Rosa, Calif., runs his straw through a hammer mill, cutting it into about 2-inch lengths. He finds the short straw does not mat nearly as badly as the standard long straw.

—Pacific Rural Press, Jan. 24, 1942.

# POULTRY STATISTICS

## Hens on Farms—Rate of Lay

Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

| Geographic Division | Layers per flock | | | Eggs per 100 layers | | | Eggs per flock | | |
|---|---|---|---|---|---|---|---|---|---|
| | Preceding year Nov. 1 | Dec. 1 | Jan. 1 | Preceding year Nov. 1 | Dec. 1 | Jan. 1 | Preceding year Nov. 1 | Dec. 1 | Jan. 1 |
| North Atl. | | | | | | | | | |
| 1931-40 (Av.) | 87.7 | 93.9 | 97.4 | 21.5 | 22.8 | 28.0 | 18.8 | 21.4 | 27.3 |
| 1941 | 86.8 | 92.4 | 95.4 | 26.2 | 30.1 | 37.7 | 22.5 | 27.6 | 36.1 |
| 1942 | 88.3 | 96.6 | 98.5 | 28.3 | 32.3 | 37.6 | 25.0 | 31.2 | 37.2 |
| E. N. Cent. | | | | | | | | | |
| 1931-40 (Av.) | 93.4 | 103.6 | 108.8 | 18.8 | 17.2 | 21.4 | 17.6 | 18.1 | 23.5 |
| 1941 | 99.0 | 106.9 | 110.3 | 24.3 | 23.6 | 30.3 | 24.2 | 25.6 | 33.9 |
| 1942 | 102.5 | 111.2 | 116.0 | 26.1 | 25.4 | 32.4 | 26.7 | 28.8 | 38.0 |
| W. N. Cent. | | | | | | | | | |
| 1931-40 (Av.) | 97.8 | 108.6 | 116.4 | 15.6 | 12.3 | 16.3 | 15.3 | 13.6 | 19.1 |
| 1941 | 96.9 | 109.9 | 116.1 | 21.4 | 13.8 | 22.0 | 20.8 | 15.4 | 25.7 |
| 1942 | 103.6 | 117.2 | 127.3 | 21.2 | 17.8 | 26.3 | 21.9 | 21.1 | 33.7 |
| South Atl. | | | | | | | | | |
| 1931-40 (Av.) | 52.4 | 55.4 | 58.6 | 21.2 | 19.5 | 22.1 | 11.2 | 10.8 | 12.9 |
| 1941 | 53.4 | 57.0 | 59.4 | 24.8 | 24.1 | 28.7 | 13.4 | 13.9 | 16.9 |
| 1942 | 55.3 | 59.3 | 61.4 | 26.0 | 24.5 | 28.8 | 14.5 | 14.6 | 17.7 |
| South Cent. | | | | | | | | | |
| 1931-40 (Av.) | 57.2 | 60.1 | 63.7 | 20.3 | 16.6 | 18.8 | 11.7 | 10.2 | 12.1 |
| 1941 | 56.7 | 59.2 | 62.7 | 23.7 | 19.0 | 22.6 | 13.6 | 11.4 | 14.4 |
| 1942 | 61.7 | 66.2 | 70.4 | 22.8 | 18.4 | 24.4 | 14.2 | 12.3 | 17.3 |
| Western | | | | | | | | | |
| 1931-40 (Av.) | 67.0 | 70.9 | 73.0 | 23.1 | 20.0 | 24.4 | 15.0 | 13.6 | 17.2 |
| 1941 | 64.9 | 68.7 | 71.6 | 27.9 | 22.4 | 27.6 | 17.1 | 14.4 | 19.3 |
| 1942 | 66.5 | 71.1 | 73.3 | 27.7 | 24.2 | 29.7 | 17.5 | 16.4 | 21.2 |
| United States | | | | | | | | | |
| 1931-40 (Av.) | 73.1 | 79.0 | 83.5 | 19.0 | 16.7 | 20.3 | 14.0 | 13.3 | 17.0 |
| 1941 | 73.5 | 79.4 | 83.2 | 23.9 | 20.2 | 26.6 | 17.6 | 16.3 | 22.1 |
| 1942 | 77.6 | 84.7 | 89.5 | 24.3 | 22.2 | 28.9 | 18.8 | 18.8 | 25.7 |

Egg production in December was a record for the month both in rate of lay per bird and in total production of eggs. Total production was 15 per cent larger than in December 1940 and 48 per cent larger than the 10-year (1930-39) December average. Production in each of the last four months has exceeded all previous high levels for the month.

The annual egg production for the year 1941 was also the largest of record. It was 5 per cent above the 1940 production, 12 per cent above the 10-year average and 4 per cent larger than the previous high production in 1930, when the average number of layers was 1 per cent larger.

Egg production reached record levels in December in all parts of the country except in the Western States, where it was exceeded only by the record production in 1939. The increase in egg production in December compared with December 1940 was 33 per cent in the West North Central, 15 per cent in the South Central, 12 per cent in the East North Central, 9 per cent in the North Atlantic and Western and 4 per cent in the South Atlantic areas. The 10-year average production was exceeded in all areas—the increase ranging from 10 per cent in the West to 64 per cent in the West North Central States.

The rate of lay in December also set a new record high. It was 8 per cent larger than in December 1940 and 40 per cent above the 10-year average. The annual rate of lay per average layer on hand during 1941 was 5 per cent higher than in 1940, 3 per cent higher than the previous record high in 1938 and 11 per cent above the 10-year annual average.

The December rate of lay compared with December 1940 increased 23 per cent in the West North Central, 7 per cent in the East North Central and West, 3 per cent in the North Atlantic and South Central, and 1 per cent in the South Atlantic areas. The 10-year average rate of lay was exceeded in all areas—the increase ranging from 15 per cent in the West to 55 per cent in the West North Central States.

The heavy rate of lay has continued into January, the daily rate shown by sample farm flocks on January 1 was 9 per cent above a year ago, the highest January 1 rate of record.

Farm flocks in December averaged 341,256,000 layers, the largest number for the month since 1930. This number exceeded that of December 1940 by 7 per cent and the 10-year average by 6 per cent. Number of layers is still 3 per cent less than the 5-year (1926-30) average number, which may be reached in another year.

Compared with a year earlier, increases were 11 per cent in the South Central, 8 per cent in the West North Central, 6 per cent in the North Atlantic, 5 per cent in the East North Central, 3 per cent in the South Atlantic and 2 per cent in the Western States. The 10-year December average number of layers was exceeded by 5 to 13 per cent in all parts of the country except the West, where the decrease was 5 per cent.

—Comment from U. S. D. A. Poultry and Egg Production Report.

## Receipts of Eggs and Poultry

Weekly receipts at central western packing plants have continued to show seasonal increases since December 1, and have greatly exceeded receipts of corresponding periods of a year earlier. These increases were more than 200 per cent during the last half of December, and over 150 per cent the first half of January. Average receipts per plant for the week ending January 17 were 635 cases, compared with 231 cases during the corresponding week last year. This was the largest weekly average since the middle of last August. Changes at Pacific Coast country receiving plants have averaged about 10 per cent greater in January this year than last year. Seasonal changes on the Pacific Coast have been relatively small during recent months, although on the whole, the trend has been upward. Weekly average receipts which, in August, were 810 cases, averaged about 910 cases in January.

Terminal market receipts of eggs are now considerably lighter than they were a year ago. Decreases in January at the four markets, New York, Chicago, Philadelphia and Boston, were 15 to 20 per cent. In December, receipts at these same markets were 22 per cent greater than a year earlier. The falling off of terminal market arrivals in the face of increased production apparently is due to increased buying of shell eggs by the Government, and to the increased demand for shell eggs in the country for use in filling Government orders for dried eggs.

Receipts of live poultry at central western packing plants have shown rather erratic changes since the first of the year. During the first two weeks of the month, there was a continuation of the downward trend with respect to weekly receipts of both young stock and fowl, but reports for each of the next two weeks showed heavy increases. During the week ending January 17 receipts were 53 per cent above the preceding week, while there was a 35 per cent increase during the week ending January 24. The heavier increases were fowl. As compared with corresponding weeks in 1941, packing plant receipts were lighter the early part of January, but were heavier as the month progressed, being 29 per cent heavier the week ending January 17, and 105 per cent heavier the week ending January 24.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs | | | Pounds of Poultry (000 omitted) | | | Pounds of Young Stock (000 omitted) | | | Pounds of Fowl (000 omitted) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | % Chg. | 1942 | 1941 | % Chg. | 1942 | 1941 | % Chg. | 1942 | 1941 | % Chg. |
| Jan. 3 | 97,367 | 28,693 | +239.34 | 2,011 | 1,992 | + 0.98 | 896 | 634 | + 41.37 | 1,044 | 1,302 | −19.84 |
| Jan. 10 | 116,281 | 43,170 | +169.36 | 1,510 | 1,800 | − 16.11 | 626 | 508 | + 23.12 | 846 | 1,229 | −31.17 |
| Jan. 17 | 130,862 | 51,298 | +155.11 | 2,312 | 1,787 | + 29.37 | 755 | 464 | + 62.71 | 1,512 | 1,271 | +18.91 |
| Jan. 24 | 131,453 | 54,249 | +142.31 | 3,146 | 1,536 | +104.82 | 817 | 351 | +132.30 | 2,248 | 1,139 | +97.35 |
| Jan. 31 | 175,433 | 68,377 | +156.57 | 2,823 | 1,772 | + 59.28 | 741 | 280 | +169.63 | 1,938 | 1,423 | +36.17 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs | | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| | | 1942 | 1941 | | |
| Jan. 3 | 62 | 57,158 | 48,360 | −1.50 | +18.19 |
| Jan. 10 | 62 | 63,479 | 53,258 | +8.81 | +19.19 |
| Jan. 17 | 61 | 57,267 | 53,493 | −0.03 | + 7.06 |
| Jan. 24 | 62 | 60,152 | 55,987 | +2.98 | + 7.44 |
| Jan. 31 | 62 | 63,374 | 58,580 | +5.36 | + 8.18 |

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| Jan. 3 | 26 | 45,430 | +11.02 | +18.36 |
| Jan. 10 | 22 | 40,122 | +13.38 | +18.12 |
| Jan. 17 | 22 | 38,624 | − 6.64 | +23.23 |
| Jan. 24 | 28 | 40,872 | −10.08 | +12.77 |
| Jan. 31 | 26 | 39,169 | + 0.93 | +17.03 |

—Compiled from U. S. D. A. market reports.

### Receipts of Eggs (cases) at 4 Markets*

| Geographic section | December | | | Jan. to Dec., Inc. | | |
|---|---|---|---|---|---|---|
| | 1941 | 1940 | % change | 1941 | 1940 | % change |
| New England | 84,580 | 65,035 | + 30.1 | 582,585 | 478,457 | +21.8 |
| Middle Atlantic | 199,765 | 187,477 | + 6.6 | 2,214,802 | 2,111,644 | + 4.9 |
| South Atlantic | 12,720 | 10,456 | + 21.7 | 215,503 | 250,716 | −14.0 |
| East North Central | 189,148 | 165,370 | + 14.4 | 3,036,829 | 2,985,440 | + 1.7 |
| West North Central | 248,431 | 171,401 | + 44.9 | 6,712,159 | 7,388,542 | − 9.2 |
| South Central | 1,884 | 474 | +297.5 | 76,269 | 77,037 | − 1.0 |
| Mountain | 27,218 | 15,089 | + 80.4 | 380,056 | 394,215 | − 3.6 |
| Pacific | 46,124 | 46,308 | − 0.4 | 257,073 | 532,724 | −51.7 |
| Miscellaneous | 300 | 320 | − 6.3 | 3,836 | 5,064 | −24.2 |
| TOTAL | 810,170 | 661,930 | + 22.4 | 13,479,112 | 14,223,839 | − 5.2 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| | | | | | | |
|---|---|---|---|---|---|---|
| New England | 430,713 | 579,497 | − 25.7 | 12,290,985 | 15,187,123 | −19.1 |
| Middle Atlantic | 2,299,020 | 1,869,885 | + 22.9 | 54,449,621 | 47,774,245 | +14.0 |
| South Atlantic | 4,588,080 | 2,444,275 | + 87.7 | 44,467,904 | 29,223,059 | +52.2 |
| East North Central | 6,400,610 | 7,186,249 | − 10.9 | 40,561,517 | 45,313,710 | −10.5 |
| West North Central | 51,023,253 | 54,283,785 | − 6.0 | 230,375,108 | 252,139,442 | − 8.6 |
| South Central | 4,789,533 | 7,407,276 | − 35.3 | 25,014,802 | 30,230,365 | −17.3 |
| Mountain | 8,248,416 | 6,949,791 | + 18.7 | 18,212,021 | 15,859,415 | +14.8 |
| Pacific | 2,893,443 | 4,576,331 | − 36.8 | 13,529,845 | 18,210,179 | −25.7 |
| Miscellaneous | 0 | 0 | – | 0 | 128,680 | – |
| TOTAL | 80,673,068 | 85,297,089 | − 5.4 | 438,901,803 | 454,066,218 | − 3.3 |

* New York, Chicago, Philadelphia and Boston.

## Egg-Feed Ratios

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Price of Fresh Graded Firsts (Dollars) | | Cost of Ration per 100 lbs. (Dollars) | |
|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | 10-Yr. Avg. 1931-40 | 1942 | 1941 | 1942 | 1941 |
| January 3 | 4.94 | 5.74 | 5.04 | .333 | .220 | 1.645 | 1.262 |
| January 10 | 5.12 | 6.37 | 5.54 | .330 | .195 | 1.688 | 1.248 |
| January 17 | 5.14 | 6.86 | 5.76 | .335 | .177 | 1.727 | 1.217 |
| January 24 | 5.22 | 7.16 | 5.82 | .331 | .175 | 1.732 | 1.254 |
| January 31 | 5.14 | 7.13 | 5.88 | .339 | .173 | 1.740 | 1.230 |

### Central California Egg-Feed Ratio

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | | | |
|---|---|---|---|---|---|---|
| | 1941 | 1940 | 1939 | 1938 | 1937 | 1936 |
| December | 5.93 | 5.71 | 8.12 | 4.35 | 6.12 | 6.82 |
| Year | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 | 7.07 |

—Data Compiled by Edwin C. Voorhies, University of California.

**New York Egg-Feed Ratio**

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Avg. Egg Price per Doz. (Dollars) | | | Avg. Feed Cost per 100 lbs. (Dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 |
| January 8 | 6.9 | 8.4 | 9.3 | .352 | .232 | .218 | 2.44 | 1.94 | 2.02 |
| January 15 | 7.0 | 9.5 | 9.2 | .353 | .206 | .218 | 2.46 | 1.96 | 2.01 |
| January 22 | 7.1 | 9.4 | 8.3 | .350 | .208 | .239 | 2.50 | 1.96 | 1.97 |
| January 29 | 7.0 | 9.8 | 7.9 | .357 | .200 | .242 | 2.52 | 1.95 | 1.92 |

—Compiled by N. Y. State Department of Agriculture and Markets.

## Egg Prices

The influence of the Government purchase program on egg markets was indicated by the reaction which occurred toward the middle of January when buying by the F. S. C. C. was temporarily discontinued. Announcement that the F. S. C. C. would be off of the market for a time because of the shipping situation resulted in a weakened tone, followed by a sharp break in prices at Chicago and New York, as well as at other Eastern points which follow these markets. Resumption of buying shortly thereafter, however, brought an immediate recovery, and by the close of the month, prices on firsts from the Midwest were about at the January 1 level. White egg prices at New York also recovered partially, although on the better grades in this class the net change for the month was a slight reduction. Prices on all grades are much higher than a year ago, the January average increase being about 12 to 15 cents per dozen, depending upon grade. The lesser difference is on the best grades, meaning that there now is a narrower spread between top grades and lower grades than existed last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**1942 Egg Prices at New York City**

| Kind | Jan. 2 | Jan. 9 | Jan. 16 | Jan. 23 | Jan. 30 | Jan. 30 '41 |
|---|---|---|---|---|---|---|
| Mixed Color Firsts | 34 | 34 | 35½ | 35 | 34-34¼ | 17¾ |
| Nearby and Midwestern White Premium Marks | 36¾-38¼ | 36¼-37¾ | 37-38½ | 36¾-38¼ | 35¼-36¾ | 21½-23 |
| Nearby and Midwestern White Exchange Specials | 36¼ | 35¾ | 36¼-36½ | 36-36¼ | 34½-34¾ | 20½-21 |
| Pacific Coast Specials | 38½-39 | 39 | 39¼-39½ | 38¼-38½ | 37¼-36¾ | 25½-26 |
| Nearby and Midwestern Brown Specials | 35½ | 36 | 36¾ | 36 | 35 | 19½ |

**Mid-Month Farm Price of Eggs per Dozen**

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. 1930-39 | 22.8 | 18.8 | 16.1 | 16.0 | 15.9 | 15.7 | 17.0 | 18.7 | 21.9 | 24.7 | 28.2 | 26.3 |
| 1940 | 18.3 | 20.2 | 15.4 | 15.0 | 15.1 | 14.4 | 16.4 | 17.2 | 21.0 | 23.7 | 26.2 | 26.8 |
| 1941 | 19.7 | 16.8 | 16.4 | 19.7 | 20.1 | 23.2 | 25.6 | 26.8 | 30.3 | 31.8 | 35.5 | 34.1 |

## Government Purchases

**Purchases of Eggs and Poultry Products by the U. S. D. A.**

| Week Ending | Shell Eggs | Dried Eggs | Canned Chicken | Canned Turkey |
|---|---|---|---|---|
| | Cases | 1,000 lbs. | 1,000 lbs. | 1,000 lbs. |
| January 3 | 43,127 | 300 | 82 | 9 |
| January 10 | 46,743 | 1,324 | 61 | 45 |
| January 17 | —— | 2,430 | 234 | 30 |
| January 24 | 18,227 | 5,730 | 125 | — |
| January 31 | 13,400 | 765 | 210 | — |
| Jan. Total | 121,497 | 10.549 | 712 | 84 |

The F. S. C. C. accepted offers on 9,283,730 pounds of dried eggs in December. Offers accepted January 1 to 20, 1942 totaled 4,055,730 pounds.

The F. S. C. C. stepped up purchases of shell eggs in January, averaging slightly over 37,500 cases each week, compared with a weekly average in December of about 16,000 cases. Purchases during January were approximately 165,000 cases. These were bought on the basis of U. S. export grades. Total F. S. C. C. purchases in December were 72,091 cases, and from March 15, 1941 to January 1, 1942 totaled 1,565,000 cases.

A recent announcement by the Department states that the program of supporting producer egg prices at a minimum of 85 per cent of parity will be extended through the coming spring season. This is designed to encourage expanded production for war time needs.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Eggs in Storage

Storage stocks of frozen eggs on January 1 totaled 95,561,000 pounds, compared with 73,326,000 on January 1 last year and 73,911,000 pounds, the January 1 (1937-1941) average. Included in the above figures were 13,519,000 pounds owned by the S. M. A. and F. S. C. C. The quantity removed from storage during December was 33,972,000 pounds compared with 17,947,000 pounds a year earlier and 14,970,000 for the average. The firms reporting stocks of dried eggs on January 1 showed that out of a total of 3,562,054 pounds on hand, only 503,129 pounds remained unsold.

Cold storage stocks of eggs on January 1, including the shell equivalent of frozen eggs, totaled 3,099,000 cases—14 per cent more than a year ago and 15 per cent more than the 5-year (1937-41) average. Holdings of shell eggs were reduced during December by 1,119,000 cases and 551,000 cases were on hand January 1. This quantity was 10 per cent below holdings on January 1 a year ago and 6 per cent below the 5-year average.

Frozen egg stocks showed an unusually heavy out-movement during December—34 million pounds, which compares with about 18 million for December a year earlier and 15 million pounds for the 5-year average. January 1 stocks of 95.6 million pounds exceeded those of a year ago by 30 per cent and the 5-year average by 29 per cent. Included in the holdings of eggs on January 1 were 251,000 cases of shell eggs and 13.5 million pounds of frozen eggs held by the Surplus Marketing Administration and Federal Surplus Commodities Corporation or about 20 per cent of total egg holdings.

The season's storage deal is drawing to a close, with about the same volume of stocks still remaining in cold storage warehouses as a year ago. On January 1, total U. S. stocks were 551,000 cases, compared with 614,000 cases a year earlier. As current holdings have moved out and been reduced to relatively small amounts, the shortage under a year ago has disappeared. Making a deduction for eggs owned by Government and relief agencies, which represent a much larger percentage than was the case a year ago, commercially owned egg stocks are less than those on hand a year ago. Of the 284,000 cases in the 35 cities on January 24, Government and relief agencies owned 163,000 cases, thus leaving commercial stocks of 121,000 cases. On the comparable date in 1941, when 35 cities stocks were 285,000 cases, commercial stocks were 195,000 cases.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Storage Holdings of Eggs**

| Kind | Jan. 1 5-Yr. Avg. 1937-41 | Jan. 1 1941 | Dec. 1 1941 | Jan. 1 1942 | % Change Jan. '41-Jan. '42 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| Shell Eggs (cases) | | | | | |
| SMA and FSCC | | 301 | 392 | 251 | –16.62 |
| Commercial | 586 | 313 | 1,278 | 300 | – 5.00 |
| Total | 586 | 614 | 1,670 | 551 | –10.43 |
| Frozen Eggs (lbs.) | | | | | |
| SMA and FSCC | | | 26,533 | 13,519 | |
| Commercial | 73,911 | 73,326 | 103,370 | 82,042 | +11.88 |
| Total | 73,911 | 73,326 | 129,533 | 95,561 | +30.32 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 2,112 | 2,095 | 3,454 | 2,548 | +30.32 |
| Total (cases) | 2,698 | 2,709 | 5,124 | 3,099 | +14.39 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

## Poultry Meat Prices

Prices of live poultry followed an irregular trend in January. The tendency was upward during the early part of the month, with gains of 2 to 3½ cents registered in leading markets. Prices eased off about the middle of the month, in some cases going even below what they had been before the advance started. However, values again increased later, and at the close were slightly higher than a month earlier. Some exceptions to this change must be made, particularly in the case of fowl, which class seems to have followed no uniform trend for markets as a whole. Compared with a year ago, prices of live poultry generally are up about 3 cents.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Mid-Month Farm Price of Chicken per Pound**

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. 1930-39 | 14.0 | 14.2 | 14.4 | 15.0 | 14.7 | 14.4 | 14.1 | 14.0 | 14.3 | 13.7 | 13.3 | 12.9 |
| 1940 | 12.0 | 12.2 | 12.8 | 12.9 | 13.6 | 13.3 | 13.6 | 13.4 | 13.7 | 13.3 | 13.1 | 13.0 |
| 1941 | 13.7 | 14.0 | 14.4 | 15.7 | 16.3 | 16.3 | 16.8 | 16.3 | 16.3 | 16.0 | 15.5 | 15.8 |

## Poultry in Storage

Frozen poultry holdings were increased by 45.5 million pounds or 13 per cent during December compared with 31 per cent increase during December 1940 and 25 per cent, the 5-year average. January 1 stocks of 218.4 million pounds were the heaviest on record for any period. They exceeded the previous high of a year ago by 5 per cent and the 5-year average by 32 per cent. All poultry items except broilers and ducks showed increases during December. Turkey stocks are 18 per cent smaller than they were a year ago, duck holdings are 14 per cent smaller. All other classes of poultry show increases, the greatest increase being 30 per cent in roaster stocks.

Receipts of dressed poultry at terminal markets have continued considerably below those of a year ago, as was the case in November and December. Storage stocks of frozen poultry on January 1 of approximately 218½ million pounds, were 10 million pounds heavier than a year earlier, and 53 million pounds above the 1937-41 average for that date. The season's peak of storage holdings appears to have been reached in the 35 cities during the week which ended January 10, since each weekly report since then shows a decrease. Stocks in the 35 cities were 1½ million pounds heavier at the beginning of January this year than last, but on January 24 were 4½ million pounds heavier. This situation results partly from a lighter out-of-storage movement the past month than occurred in January 1941.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Storage Holdings of Poultry

| Kind | Jan. 1 5-Yr. Avg. 1937-41 | Jan. 1 1941 | Dec. 1 1941 | Jan. 1 1942 | % Change Jan. '41-Jan. '42 |
|---|---|---|---|---|---|
| | Thousand Pounds | | | | |
| Broilers | 14,245 | 11,170 | 14,169 | 14,048 | +25.76 |
| Fryers | 14,636 | 14,327 | 17,598 | 18,186 | +26.93 |
| Roasters | 33,173 | 35,118 | 37,929 | 45,582 | +29.79 |
| Fowls | 30,012 | 41,461 | 37,672 | 44,269 | + 6.77 |
| Turkeys | 39,277 | 60,626 | 21,129 | 49,956 | –17.60 |
| Ducks | 6,169 | 7,992 | 9,421 | 6,876 | –13.97 |
| Miscellaneous | 27,788 | 20,819 | 19,294 | 21,412 | + 2.36 |
| Unclassified | | 16,852 | 15,701 | 18,045 | + 7.07 |
| Total | 165,300 | 208,365 | 172,913 | 218,374 | + 4.80 |

## Hatchery Operations

### Chicks Hatched by Commercial Hatcheries

| Geographic Divisions | Dec. 1938 | Dec. 1939 | Dec. 1940 | Dec. 1941 | % chg. from Dec. 1940 | Jan.-Dec. Inc. 1940 | Jan.-Dec. Inc. 1941 | % chg. from 1940 |
|---|---|---|---|---|---|---|---|---|
| | Thousands | | | | | | | |
| New England | 2,872 | 2,540 | 2,807 | 4,239 | + 51 | 50,624 | 71,456 | +41 |
| Middle Atlantic | 1,288 | 1,078 | 1,548 | 3,127 | +102 | 70,705 | 84,431 | +19 |
| South Atlantic | 2,961 | 2,888 | 3,865 | 6,725 | + 74 | 78,005 | 107,390 | +38 |
| E. N. Central | 2,258 | 2,263 | 2,656 | 3,293 | + 24 | 232,953 | 285,428 | +23 |
| W. N. Central | 1,296 | 919 | 582 | 960 | + 65 | 245,583 | 311,453 | +27 |
| South Central | 2,018 | 2,251 | 2,411 | 2,966 | + 23 | 83,010 | 112,429 | +35 |
| Mountain | 54 | 58 | 26 | 39 | + 50 | 15,012 | 18,877 | +26 |
| Pacific | 1,870 | 1,861 | 1,904 | 2,666 | + 40 | 48,030 | 61,004 | +27 |
| United States | 14,617 | 13,858 | 15,799 | 24,015 | + 52 | 823,922 | 1,052,468 | +28 |

### Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

| Geographic Divisions | Chicks booked Jan. 1 | % Light breed hatched | | % Heavy breed hatched | | Sexing |
|---|---|---|---|---|---|---|
| | % change from Jan. 1, 1940 | Dec. 1940 | Dec. 1941 | Dec. 1940 | Dec. 1941 | % change from Dec. 1940 |
| New England | +128 | 4 | 2 | 96 | 98 | — |
| Middle Atlantic | + 45 | 3 | 3 | 97 | 97 | +2,700 |
| South Atlantic | + 45 | 1 | 0 | 99 | 100 | + 508 |
| E. N. Central | + 23 | 4 | 8 | 96 | 92 | – 10 |
| W. N. Central | + 62 | 8 | 30 | 92 | 70 | + 21 |
| South Central | + 27 | 1 | 8 | 99 | 92 | — |
| Mountain | +211 | 14 | 12 | 86 | 88 | — |
| Pacific | + 37 | 51 | 43 | 49 | 57 | + 23 |
| United States | + 54 | 8 | 8 | 92 | 92 | + 102 |

### Eggs Set by Commercial Hatcheries

| Geographic Divisions | Dec. 1938 | Dec. 1939 | Dec. 1940 | Dec. 1941 | % chg. from Dec. 1940 | Jan.-Dec. Inc. 1940 | Jan.-Dec. Inc. 1941 | % chg. from 1940 |
|---|---|---|---|---|---|---|---|---|
| | Thousands | | | | | | | |
| New England | 5,029 | 3,966 | 6,823 | 7,301 | + 7 | 74,962 | 100,422 | +34 |
| Middle Atlantic | 3,171 | 2,183 | 2,860 | 4,462 | +56 | 110,251 | 127,062 | +15 |
| South Atlantic | 4,457 | 4,498 | 5,909 | 9,454 | +60 | 110,057 | 150,790 | +37 |
| E. N. Central | 4,650 | 4,503 | 5,217 | 6,469 | +24 | 369,978 | 447,248 | +21 |
| W. N. Central | 2,982 | 2,711 | 1,957 | 3,503 | +79 | 364,452 | 483,141 | +33 |
| South Central | 3,093 | 3,607 | 3,431 | 3,911 | +14 | 119,045 | 161,217 | +35 |
| Mountain | 77 | 84 | 125 | 149 | +19 | 23,466 | 28,740 | +22 |
| Pacific | 4,173 | 3,478 | 4,183 | 4,769 | +14 | 72,441 | 91,351 | +26 |
| United States | 27,632 | 25,030 | 30,505 | 40,018 | +31 | 1,244,652 | 1,589,971 | +28 |

## Egg Breaking Operations

Liquid egg production by commercial egg breaking plants in December is estimated at 12,062,000 pounds compared with 437,000 pounds in December last year, the U. S. Department of Agriculture reports. Plants that usually freeze most of their production showed that 95 per cent of their production in December was used for drying purposes.

Considerable quantities of storage shell eggs were used in December for producing dried eggs. About 225,000 cases of storage eggs were broken out in December by the firms reporting drying operations. Only relatively small quantities of frozen eggs have been reported used for drying.

### Liquid Egg Production, December 1940-41

| | | December 1940 | December 1941 | % change Dec.'40-Dec.'41 |
|---|---|---|---|---|
| | | Thousand Pounds | | |
| Whole eggs | | 189 | 11,760 | +6,122 |
| Mixed eggs (plain) | | 1 | 36 | +3,500 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 26 | 24 | – 8 |
| Egg whites (all descriptions) | | 124 | 133 | + 7 |
| Egg yolks packed | Without salt, sugar, etc. | 91 | 109 | + 20 |
| | With sugar | 6 | — | — |
| | With salt | — | — | — |
| | All yolk emulsions, including glycerine | — | — | — |
| Total | | 437 | 12,062 | +2,660 |

### Dried Egg Production, December 1940-41

| Commodity | Total Reported December 1941 | Same Firm Comparison | | |
|---|---|---|---|---|
| | | Dec. 1940 | Dec. 1941 | Dec. '40-Dec. '41 % change |
| | Pounds | | Pounds | |
| Whole | 4,860,230 | 0 | 4,860,230 | |
| Albumen | 47,335 | 19,308 | 47,335 | + 145 |
| Yolks | 21,051 | 0 | 21,051 | |
| Total | 4,928,616 | 19,308 | 4,928,616 | +25,426 |
| Firms reporting | 16 | 16 | | |

# RESULTS OF LAYING TESTS

Continuing to maintain a lead over past production records, laying test entrants laid an average of 17.57 eggs for 18.39 points during January, bringing their total average production for the 92 days on test to 51.45 eggs worth 50.70 points—a margin of about 2 eggs and 2 points over previous records.

With average production above a year ago, but with leaders in most classes somewhat below the records set last year, competition is particularly keen. Less than 2 points separate the two leading pens—the White Leghorn entries of Holser's Valley Farm and Rapp's Poultry Farm. There is a margin of but 6 eggs between the top five hens, and a spread of less than 10 points.

Dryden's Barred Rock hen at Storrs is but 1 egg and 2.30 points behind Seidel's record-breaking Leghorn last year. To equal last year's record, this hen will have to lay 253 eggs worth 279.05 points in the 264 days remaining in the 1941-42 test year.

Five tests have averages above the high test average on January 1, 1941. Mortality, both for December and for the 92 days on test, is significantly below that of last year.

Competition within the various breeds is keen. Most of the margins are slim, and it is much too early to make any predictions regarding probable winners at the end of the laying test year.

### Twenty High Pens, All Breeds, to Jan. 1—(92 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Holser's Valley Farm | White Leghorn | 1041 | 1081.65 | Storrs |
| Rapp's Poultry Farm | White Leghorn | 1041 | 1080.05 | Hunterdon, N. J. |
| W. H. Wilson | Rhode Island Red | 1020 | 1067.20 | Georgia |
| Harco Orchards | Rhode Island Red | 1000 | 1056.30 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 1004 | 1055.80 | Georgia |
| W. H. Wilson | Rhode Island Red | 1054 | 1053.25 | Georgia |
| Harco Orchards | Rhode Island Red | 997 | 1039.60 | Rhode Island |
| Bagby Poultry Farm | Rhode Island Red | 990 | 1036.75 | Arizona |
| J. J. Warren | Rhode Island Red | 1017 | 1036.65 | Storrs |
| C. C. Hersey | Rhode Island Red | 1050 | 1032.85 | Storrs |
| J. A. Hanson | White Leghorn | 1015 | 1023.50 | Georgia |
| Ralph W. Anderson | Rhode Island Red | 956 | 1020.65 | Rhode Island |
| J. J. Warren | Rhode Island Red | 1008 | 1019.30 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 996 | 1016.15 | Georgia |
| E. B. Parmenter | Rhode Island Red | 1009 | 1016.00 | Storrs |
| Roy E. Peckham | Rhode Island Red | 992 | 1015.40 | Rhode Island |
| George A. Pearce | New Hampshire | 993 | 1013.30 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 992 | 1011.85 | Storrs |
| Joachim Breeding Farm | New Hampshire | 983 | 1011.35 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 955 | 1009.05 | Pennsylvania |

### High Pen in Each Test for December

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 370 | 400.35 | Rhode Island |
| Holser's Valley Farm | White Leghorn | 362 | 388.35 | Storrs |
| Rapp's Poultry Farm | White Leghorn | 356 | 379.45 | Hunterdon, N. J. |
| W. H. Wilson | Rhode Island Red | 347 | 373.35 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 337 | 367.05 | Texas |
| G. B. Treadwell | Rhode Island Red | 351 | 364.70 | Maine |
| Crooks Farm | Rhode Island Red | 349 | 364.25 | Pennsylvania |
| Hillview Poultry Farm | Rhode Island Red | 354 | 363.85 | California |
| Bagby Poultry Farm | Rhode Island Red | 337 | 362.70 | Arizona |
| G. B. Treadwell | Rhode Island Red | 336 | 351.35 | Long Island |
| Crooks Farm | Rhode Island Red | 327 | 349.30 | Passaic, N. J. |
| J. A. Hanson | White Leghorn | 329 | 347.05 | Western New York |
| Foreman Poultry Farm | White Leghorn | 307 | 330.65 | Missouri |
| Plainview Poultry Farm | White Leghorn | 318 | 329.10 | Florida |
| J. J. Warren | Rhode Island Red | 308 | 318.90 | Michigan |
| Robert Chapman | Rhode Island Red | 318 | 309.35 | Oklahoma |
| Holser's Valley Farm | White Leghorn | 281 | 302.70 | Central New York |

### High Pen in Each Breed to Jan. 1—(92 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Holser's Valley Farm | White Leghorn | 1041 | 1081.65 | Storrs |
| W. H. Wilson | Rhode Island Red | 1020 | 1067.20 | Georgia |
| G. A. Pearce | New Hampshire | 993 | 1013.30 | Hunterdon, N. J. |
| J. W. Schaible | Barred Rock | 1025 | 958.95 | Hunterdon, N. J. |
| Harvey E. Taylor | White Wyandotte | 914 | 922.00 | Texas |
| Riley Poultry Farm | White Rock | 913 | 877.90 | Storrs |
| Ernest Pedigo | Australorp | 767 | 790.50 | Arizona |
| Raymond S. Thomas | Ancona | 753 | 738.45 | Pennsylvania |
| Harry L. Phillips | Columbian Rock | 628 | 659.10 | Missouri |
| Dryden Poultry Breeding | Cross | 648 | 625.55 | California |
| Imperial Breeding Farm | White Giant | 567 | 560.65 | Maine |
| Miami Hatchery | Buff Rock | 565 | 537.55 | Michigan |
| T. D. Brown | White Minorca | 500 | 520.60 | Texas |
| Horne's Hatchery | Black Minorca | 482 | 511.55 | Texas |
| C. A. Richardson | Buff Leghorn | 584 | 510.00 | Hunterdon, N. J. |
| Henry F. Waitt | Buff Minorca | 456 | 419.35 | Maine |
| Wellington Wells | Silver Laced Wyandotte | 472 | 408.80 | Maine |
| Iowa Master Breeders | Buff Orpington | 416 | 368.20 | Texas |
| Imperial Breeding Farm | New Hampshire White | 343 | 360.85 | Missouri |
| F. G. Romance | Partridge Plymouth Rock | 161 | 148.25 | Florida |
| Philip Maddux | Black Leghorn | 172 | 146.10 | Long Island |

### High Pen in Each Test to Jan. 1—(92 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Holser's Valley Farm | White Leghorn | 1041 | 1081.65 | Storrs |
| Rapp's Poultry Farm | White Leghorn | 1041 | 1080.05 | Hunterdon, N. J. |
| W. H. Wilson | Rhode Island Red | 1020 | 1067.20 | Georgia |
| Harco Orchards | Rhode Island Red | 997 | 1039.60 | Rhode Island |
| Bagby Poultry Farm | Rhode Island Red | 990 | 1036.75 | Arizona |
| Kauder's Pedigreed Leghorns | White Leghorn | 955 | 1009.05 | Pennsylvania |
| E. B. Parmenter | Rhode Island Red | 1014 | 1002.90 | Passaic, N. J. |
| J. J. Warren | Rhode Island Red | 963 | 998.25 | Maine |
| Kauder's Pedigreed Leghorns | White Leghorn | 926 | 988.60 | Texas |
| Hillview Poultry Farm | Rhode Island Red | 982 | 987.50 | California |
| Foreman Poultry Farm | White Leghorn | 930 | 969.90 | Missouri |
| J. A. Hanson | White Leghorn | 961 | 965.15 | Western New York |
| Crescent Farms | New Hampshire | 916 | 938.00 | Florida |
| G. B. Treadwell | Rhode Island Red | 900 | 909.80 | Long Island |
| Foreman Poultry Farm | White Leghorn | 877 | 900.60 | Central New York |
| Foreman Poultry Farm | White Leghorn | 969 | 894.85 | Oklahoma |
| J. J. Warren | Rhode Island Red | 864 | 860.25 | Michigan |

## High Hen in Each Breed to Jan. 1—(92 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Dryden Poultry Breeding Farm | Barred Rock | 90 | 97.20 | Storrs |
| Bagby Poultry Farm | Rhode Island Red | 88 | 95.90 | Arizona |
| Rapp's Poultry Farm | White Leghorn | 89 | 94.15 | Hunterdon, N. J. |
| Thos. J. Harrold | New Hampshire | 86 | 91.15 | Georgia |
| Paul Hansen | Australorp | 84 | 88.20 | California |
| Drumm Egg Farm | White Rock | 80 | 85.05 | Georgia |
| Harvey E. Taylor | White Wyandotte | 78 | 80.05 | Texas |
| Imperial Breeding Farm | White Giant | 73 | 76.70 | Maine |
| Raymond S. Thomas | Ancona | 69 | 75.40 | Pennsylvania |
| Dryden Poultry Breeding Farm | Cross | 75 | 73.85 | California |
| Harry L. Phillips | Columbian Rock | 71 | 73.10 | Missouri |
| Henry F. Waitt | Buff Minorca | 69 | 67.50 | Maine |
| T. D. Brown | White Minorca | 61 | 65.55 | Texas |
| Miami Hatchery | Buff Rock | 62 | 64.20 | Michigan |
| Imperial Breeding Farm | New Hampshire White | 60 | 63.45 | Missouri |
| Charles A. Richardson | Buff Leghorn | 60 | 56.80 | Hunterdon, N. J. |
| Horne's Hatchery | Black Minorca | 53 | 54.70 | Texas |
| Wellington Wells | Silver Laced Wyandotte | 58 | 52.10 | Maine |
| Iowa Master Breeders | Buff Orpington | 53 | 51.95 | Texas |
| Philip Maddux | Black Leghorn | 45 | 37.50 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 34 | 30.90 | Florida |

## High Hen in Each Test to Jan. 1—(92 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Dryden Poultry Breeding Farm | Barred Rock | 90 | 97.20 | Storrs |
| Bagby Poultry Farm | Rhode Island Red | 88 | 95.90 | Arizona |
| Harco Orchards | Rhode Island Red | 87 | 95.45 | Maine |
| E. B. Parmenter | Rhode Island Red | 88 | 95.30 | Passaic, N. J. |
| Rapp's Poultry Farm | White Leghorn | 89 | 94.15 | Hunterdon, N. J. |
| W. H. Wilson | Rhode Island Red | 86 | 93.95 | Georgia |
| Rinker Poultry Farm | White Leghorn | 87 | 92.85 | Pennsylvania |
| E. B. Parmenter | Rhode Island Red | 85 | 92.65 | Western New York |
| E. B. Parmenter | Rhode Island Red | 85 | 92.40 | Florida |
| E. B. Parmenter | Rhode Island Red | 84 | 92.10 | California |
| Richard H. Gee | Rhode Island Red | 86 | 91.70 | Rhode Island |
| J. J. Warren | Rhode Island Red | 86 | 90.50 | Michigan |
| Creighton Bros. | White Leghorn | 89 | 90.45 | Central New York |
| Geo. M. Heberer | White Leghorn | 85 | 88.45 | Texas |
| Joachim Breeding Farm | New Hampshire | 79 | 86.60 | Long Island |
| To-Lani Farm | Rhode Island Red | 84 | 85.10 | Oklahoma |
| To-Lani Farm | Rhode Island Red | 79 | 84.85 | Missouri |

## Twenty High White Leghorn Pens to Jan. 1—(92 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Holser's Valley Farm | 1041 | 1081.65 | Storrs |
| Rapp's Poultry Farm | 1041 | 1080.05 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | 1004 | 1055.80 | Georgia |
| J. A. Hanson | 1015 | 1023.50 | Georgia |
| Kauder's Pedigreed Leghorns | 996 | 1016.15 | Georgia |
| Kauder's Pedigreed Leghorns | 992 | 1011.85 | Storrs |
| Kauder's Pedigreed Leghorns | 955 | 1009.05 | Pennsylvania |
| Howard Woodward | 966 | 995.80 | Hunterdon, N. J. |
| Babcock's Hatchery | 1041 | 991.80 | Pennsylvania |
| Holser's Valley Farm | 1037 | 990.30 | Storrs |
| Kauder's Pedigreed Leghorns | 926 | 988.60 | Texas |
| Foreman Poultry Farm | 1004 | 987.30 | Storrs |
| Jack O'Harrow | 1003 | 986.30 | Texas |
| W. A. Seidel | 974 | 985.65 | Texas |
| Rapp's Poultry Farm | 956 | 976.05 | Hunterdon, N. J. |
| J. A. Hanson | 972 | 974.75 | Georgia |
| Foreman Poultry Farm | 930 | 969.90 | Missouri |
| A. B. Gillam | 986 | 968.10 | Georgia |
| Guy A. Leader | 1022 | 966.35 | Storrs |
| J. A. Hanson | 961 | 965.15 | Western New York |

## Twenty High Rhode Island Red Pens to Jan. 1—(92 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| W. H. Wilson | 1020 | 1067.20 | Georgia |
| Harco Orchards | 1000 | 1056.30 | Storrs |
| W. H. Wilson | 1054 | 1053.25 | Georgia |
| Harco Orchards | 997 | 1039.60 | Rhode Island |
| Bagby Poultry Farm | 990 | 1036.75 | Arizona |
| J. J. Warren | 1017 | 1036.65 | Storrs |
| C. C. Hersey | 1050 | 1032.85 | Storrs |
| Ralph W. Anderson | 956 | 1020.65 | Rhode Island |
| J. J. Warren | 1008 | 1019.30 | Georgia |
| E. B. Parmenter | 1009 | 1016.00 | Storrs |
| Roy E. Peckham | 992 | 1015.40 | Rhode Island |
| J. J. Warren | 1030 | 1005.15 | Storrs |
| J. J. Warren | 964 | 1003.30 | Rhode Island |
| E. B. Parmenter | 1014 | 1002.90 | Passaic, N. J. |
| David T. Cohen | 973 | 1001.00 | Georgia |
| J. J. Warren | 963 | 998.25 | Maine |
| Crooks Farm | 980 | 993.15 | Storrs |
| Robert C. Cobb | 996 | 989.50 | Storrs |
| Hillview Poultry Farm | 982 | 987.50 | California |
| G. B. Treadwell | 975 | 985.65 | Maine |

## Twenty High New Hampshire Pens to Jan. 1—(92 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| George A. Pearce | 993 | 1013.30 | Hunterdon, N. J. |
| Joachim Breeding Farm | 983 | 1011.35 | Storrs |
| James H. Horne | 968 | 992.05 | Storrs |
| George A. Pearce | 957 | 970.40 | Storrs |
| H. S. & M. E. Twichell | 946 | 939.05 | Storrs |
| Crescent Farms | 916 | 938.00 | Florida |
| Joachim Breeding Farm | 895 | 921.40 | Hunterdon, N. J. |
| Thos. J. Harrold | 947 | 916.00 | Georgia |
| C. D. Cummings | 941 | 903.55 | Georgia |
| Eben Wood | 854 | 902.65 | Rhode Island |
| Hubbard Farms | 903 | 895.25 | Western New York |
| Howard Breeding Farm | 870 | 895.25 | California |
| Hubbard Farms | 898 | 886.05 | Storrs |
| Hubbard Farms | 913 | 884.25 | Pennsylvania |
| Pine Mountain Valley Farm | 892 | 882.05 | Georgia |
| W. C. Goodson | 837 | 872.05 | Rhode Island |
| James H. Horne | 864 | 857.95 | Pennsylvania |
| Pine Mountain Valley Farm | 876 | 850.45 | Georgia |
| Hubbard Farms | 884 | 848.85 | Georgia |
| Hubbard Farms | 891 | 848.40 | Florida |

## Twenty High Barred Plymouth Rock Pens to Jan. 1—(92 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| J. W. Schaible | 1025 | 958.95 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 942 | 938.10 | Storrs |
| Dryden Poultry Breeding Farm | 955 | 922.45 | Storrs |
| Harco Orchards | 907 | 907.65 | Rhode Island |
| Angus J. Urquhart | 956 | 897.80 | Maine |
| Harco Orchards | 976 | 890.30 | Maine |
| Foster Jameson | 866 | 886.10 | Maine |
| W. C. Goodson | 834 | 875.35 | Rhode Island |
| Hockhockson Farm | 859 | 868.40 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 879 | 836.10 | California |
| Vincent Nasto | 868 | 830.80 | Hunterdon, N. J. |
| Peachblow Farm | 845 | 815.55 | Maine |
| Riley Poultry Farm | 832 | 813.65 | Oklahoma |
| Robert C. Cobb | 812 | 809.30 | Storrs |
| Dryden Poultry Breeding Farm | 836 | 801.45 | Pennsylvania |
| Fisher Orchards | 740 | 762.90 | Pennsylvania |
| Angus J. Urquhart | 805 | 762.80 | Passaic, N. J. |
| Harco Orchards | 740 | 751.75 | Storrs |
| Penn's Poultry Breeding Farm | 775 | 748.70 | Texas |
| Riley Poultry Farm | 767 | 740.20 | Pennsylvania |

## Twenty High White Plymouth Rock Pens to Jan. 1—(92 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Riley Poultry Farm | 913 | 877.90 | Storrs |
| Carter-Dunham | 810 | 820.45 | Pennsylvania |
| Riley Poultry Farm | 846 | 819.65 | Georgia |
| Albert C. Lawton | 825 | 811.20 | Rhode Island |
| Bagby Poultry Farm | 783 | 805.90 | Texas |
| Holtzapple Poultry Farm | 831 | 804.15 | Georgia |
| Missouri Valley Farm | 812 | 795.50 | Georgia |
| Ralph D. Young | 792 | 783.55 | Maine |
| Drumm Egg Farm | 777 | 782.95 | Georgia |
| Townsley Trapnest Farm | 774 | 771.90 | Georgia |
| Albert C. Lawton | 741 | 741.55 | Storrs |
| Missouri Valley Farm | 719 | 741.25 | Texas |
| Four Winds Farm | 745 | 734.65 | Michigan |
| Kerr Chickeries | 754 | 733.90 | Maine |
| Booth Farms & Hatchery | 731 | 724.90 | Texas |
| Knepley Hatchery | 734 | 720.05 | Oklahoma |
| Carter-Dunham | 688 | 719.80 | Texas |
| Riley Poultry Farm | 745 | 715.05 | Michigan |
| Pay Streak Hatchery | 704 | 703.55 | Pennsylvania |
| Kerr Chickeries | 703 | 691.30 | Hunterdon, N. J. |

## Average Production and Mortality, Each Test, to Jan. 1—(92 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for Dec. | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Hunterdon, N. J. | 624 | 63.70 | 62.96 | 23.76 | .28 | 1.89 |
| Arizona | 390 | 60.17 | 62.01 | 24.20 | 1.28 | 2.82 |
| Georgia | 1,326 | 61.71 | 60.71 | 23.66 | 1.35 | 3.01 |
| Rhode Island | 611 | 58.22 | 60.65 | 24.82 | 2.29 | 4.10 |
| Storrs | 1,352 | 60.65 | 59.81 | 23.70 | .96 | 2.15 |
| Pennsylvania | 1,105 | 58.56 | 57.17 | 23.58 | 1.63 | 2.09 |
| Texas | 1,456 | 54.16 | 53.65 | 23.80 | 2.22 | 2.75 |
| California | 598 | 52.41 | 50.83 | 23.38 | 1.01 | 2.35 |
| Florida | 1,118 | 52.00 | 50.64 | 23.46 | .71 | 3.05 |
| Passaic, N. J. | 871 | 51.39 | 50.23 | 23.54 | 2.75 | 4.48 |
| Maine | 988 | 51.59 | 49.45 | 23.16 | 1.42 | 2.13 |
| Western New York | 975 | 45.14 | 44.86 | 23.86 | .72 | 1.75 |
| Oklahoma | 650 | 44.97 | 43.28 | 23.24 | .93 | 2.47 |
| Central New York | 1,066 | 42.19 | 41.68 | 23.74 | 1.17 | 1.83 |
| Michigan | 871 | 42.41 | 39.58 | 22.66 | 3.91 | 5.52 |
| Long Island | 1,092 | 40.59 | 38.80 | 23.10 | .74 | 2.39 |
| Missouri | 780 | 34.87 | 35.68 | 24.40 | 2.31 | 2.70 |
| All Tests | 15,873 | 51.45 | 50.70 | 23.65 | 1.51 | 2.79 |

## *Egg Goal Raised*

Secretary of Agriculture Claude R. Wickard on January 16 called for somewhat larger production of eggs than originally requested in his goals announced last fall. Instead of 4,000,000,000 dozens of eggs, he asks poultry raisers to step up egg production in 1942 by another 200,000,000 dozens—an increase of 13 per cent over the record breaking egg production of 1941. The goal on farm chickens raised for market remains at 644,000 head, which, however, is 10 per cent above 1941 production of market poultry, not including broilers.

—Everybodys Poultry Magazine, February, 1942.

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**W. C. GOODSON,** (p. 106) manager of Pine Top Poultry Farm, began a literary career at Wesleyan College, Middletown, Conn., but caught the chicken fever in 1933 while vacationing in the White Mountains of New Hampshire. There in the very shadow of Mt. Washington, he founded Pine Top Poultry Farm, at Tamworth, N. H. Established as a breeding institution, it has grown in size and influence. Today, Mr. Goodson is trapnesting over 2,200 pullets in R.O.P. candidate matings. He has 41 individually mated pens including more than 650 birds. He houses 8,000 breeders. And a complete progeny test program is being practiced on four distinct breeds, namely: New Hampshires, White Leghorns, White and Barred Rocks.

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Just to satisfy our own curiosity, we find, upon looking back, that during 1941 the Poultry Digest carried 116 feature articles, 16 talks, 134 short articles, 94 filler shorts on odd and interesting poultry items, 143 reviews of poultry research, 57 editorials, 235 statistical tables, and 144 tables on laying test results. It makes quite an imposing lineup, probably more so to us when we look back and think of the vast amount of material which had to be examined to obtain the contents of one year's volume.

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If you have been planning to buy a binder for holding last year's copies of the Poultry Digest, it might be well to purchase it early. Since this binder is made of steel wires, heavy paperboard, and synthetic cover material, we rather anticipate that we will not be able to replenish our stock once it is exhausted. Our previous order, placed before the outbreak of war, took some time to fill. The price of the binder, which holds 12 copies of the Digest, is $1.50 postpaid in the United States.

## Twenty High White Plymouth Rock Pens to Jan. 1—(92 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Riley Poultry Farm | 913 | 877.90 | Storrs |
| Carter-Dunham | 810 | 820.45 | Pennsylvania |
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| Passaic, N. J. | 871 | 51.39 | 50.23 | 23.54 | 2.75 | 4.48 |
| Maine | 988 | 51.59 | 49.45 | 23.16 | 1.42 | 2.13 |
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| Long Island | 1,092 | 40.59 | 38.80 | 23.10 | .74 | 2.39 |
| Missouri | 780 | 34.87 | 35.68 | 24.40 | 2.31 | 2.70 |
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INTENTIONAL SECOND EXPOSURE

## A Poultryman's Pledge

I pledge allegiance to the United States of America.

Recognizing the importance of Food not only to "Win the War" but "Write the Peace" I hereby pledge myself to every effort necessary in the production of as much more poultry and eggs on my farm as is cognizant with good farming practice.

I will—

1. Buy better chicks
2. Brood them carefully
3. Feed an efficient, adequate ration at all times
4. House my pullets early
5. Practice a constant culling program
6. Provide comfortable laying quarters
7. Market my eggs frequently
8. Protect the health of my birds by all practical means

**Efficiency is every Patriot's Duty**

Not just "more eggs and more poultry for '42"
But "Efficient Production of More and Better Eggs and Poultry."

—1942 Indiana Poultry Blue Book.

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NATIONAL
POULTRY DIGEST

Published on the 15th of each month at Hanover, Pa., by Everybodys Poultry Magazine Pub. Co., Inc. C. N. Myers, pres.; Roland C. Hartman, editor and mgr.; Jas. T. Huston, vice-pres.; R. B. Alleman, sec.-treas.; Paul F. Worcester, assoc. editor. Single copies, 25 cents. Back copies, 40 cents. Subscriptions: $2.00 a year in the United States and the Pan-American postal union; $3.00 a year in Canada and foreign countries. Binder holding 12 copies, $1.50 postpaid in U.S.A. Entered as second-class matter Jan. 20, 1939, at the post office at Hanover, Pa., under the act of March 3, 1879.

Vol. 4, No. 39 March 15, 1942

# Sulfaguanidine for Cecal Coccidiosis

By J. R. BEACH
University of California

*Reprinted from California Cultivator*

SULFAGUANIDINE is one of the newer sulfa compounds which have been developed since sulfanilamide was found to be such a valuable drug. Since it is very insoluble when given by mouth, it reaches the intestines unchanged, is absorbed slowly and, therefore, can act directly upon coccidia or other disease-producing organisms in the intestines.

Chickens were found to be so tolerant to the drug that large doses in capsules or mixed with mash could be given without causing definite symptoms of toxicity or death. However, by feeding mash containing sulfaguanidine to growing chickens continuously over 10-day periods, a toxic effect could be shown and measured by comparing the gains in weight of the chickens with those of control chickens fed nonmedicated mash. The average weight gain of chickens fed 0.5 per cent sulfaguanidine mash was approximately the same, of those fed 1 per cent sulfaguanidine mash was 43.2 grams less, of those fed 2 per cent sulfaguanidine mash was 93.8 grams less, and of those fed 4 per cent sulfaguanidine mash was 189.3 grams less (these chickens lost weight) than the controls fed nonmedicated mash. The toxic effect was found to be the result of dam-

Cultivator Publishing Company, Inc., 317 Central Ave., Los Angeles, Calif.
(California Cultivator, Feb. 21, 1942)

## A Poultryman's Pledge

I pledge allegiance to the United States of America.

Recognizing the importance of Food not only to "Win the War" but "Write the Peace" I hereby pledge myself to every effort necessary in the production of as much more poultry and eggs on my farm as is cognizant with good farming practice.

I will—

1. Buy better chicks
2. Brood them carefully
3. Feed an efficient, adequate ration at all times
4. House my pullets early
5. Practice a constant culling program
6. Provide comfortable laying quarters
7. Market my eggs frequently
8. Protect the health of my birds by all practical means

**Efficiency is every Patriot's Duty**

Not just "more eggs and more poultry for '42"
But "Efficient Production of More and Better Eggs and Poultry."

—1942 Indiana Poultry Blue Book.

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INTENTIONAL SECOND EXPOSURE

age to the kidneys. It is evident from the above that sulfaguanidine would not be safe for indiscriminate use and without precise regulation of the dosage.

### Method of Study

In the experiments with sulfaganidine in the treatment of cecal coccidiosis, groups of chicks were inoculated with measured doses of oocysts of proper size to produce mild, moderate or severe infection, and fed sulfaguanidine mash starting the day before, at the same time, or from one to six days after inoculation and continuing until the tenth day after inoculation. An inoculated but untreated control group and a group neither inoculated nor treated, were included in each experiment. The effect of the inoculation on the chicks was measured by making regular counts of the number of oocysts in the droppings, symptoms shown by the chicks, the autopsy of the chickens at the end of the experiments, and the gain (or loss) in weight during a 10-day period. A new method for counting coccidial oocysts in the droppings was devised, which made it possible to conduct these experiments on a larger scale than could have been done otherwise.

For mild infection, 2 per cent and 4 per cent sulfaguanidine mash only was tried and was started when the chickens were inoculated. The treated chicks showed no evidence of coccidial infection, but growth wa greatly retarded by the effects o the drug. The inoculated and un treated controls developed relative mild symptoms and increased i weight nearly as much as the un inoculated and untreated control Consequently, no further trials wit this dosage were made.

### Determining Dosage

For moderate infection, 0.5 pe cent, 1 per cent, 2 per cent and 4 per cent sulfaguanidine mash feeding was started when the chicks were inoculated. The 0.5 per cent sulfaguanidine mash group showed mild symptoms of coccidiosis, the other treated groups none at all.

The nontreated controls were rather severely, although not fatally, affected and their average gains in weight were, respectively, 75 grams, 54 grams, and 25 grams less than the chickens fed the 0.5 per cent 1 per cent and 2 per cent sulfaguanidine mash. The gain in weight of the chickens given the 0.5 per cent sulfaguanidine mash was approximately equal to that of the noninoculated and nontreated control group. This treatment, therefore, was superior to the 1 per cent and 2 per cent sulfaguanidine mashes even though it gave less complete protection against coccidial infection. The effect of treatment with the 4 per cent sulfaguanidine mash was obviously worse than the disease itself.

In the experiments with severely infected chickens, treatment was begun one day before, at the same time, and from one to six days after inoculation, using 0.5 per cent and 1 per cent sulfaguanidine mash. When treatment was started the day before, on the same day as, or one day after birds were inoculated, the sulfaguanidine mash was highly effective in combating the heavy infection.

### How to Treat

Contrary to the results when a lighter dose of oocysts was given, the 1 per cent sulfaguanidine mash gave greater benefit than the 0.5 per cent with respect to both symptoms of coccidiosis and gains in the weight of the birds. The highest effectiveness was seen when treatment was started a day before inoculation. The average gain in weight was from 169 to 206 grams more for treated birds than for nontreated inoculated controls and was only from 42 to 89 grams less than that of the nontreated and noninoculated controls. Furthermore, the treated groups showed slight or no clinical symptoms and had no deaths, while the untreated and inoculated controls were severely affected and approximately half of them died.

When feeding the medicated mash was delayed until two to six days after the birds were inoculated, it was much less effective although all treated groups fared better than nontreated, inoculated birds. The medication did not appear to materially alter the severity of the infection, but the treated birds did recover faster than the nontreated after the infection had run its course.

### Administering in Capsules

By chemical assay of the cecal contents of birds fed sulfaguanidine mash, the level of the drug in the cecal contents necessary to restrain the development of the coccidia and the phase in the developmental cycle when this level must be attained were determined. This level is reached slowly when intake of the drug is solely with the food, but can be hastened by giving an initial dose of the drug to each chicken in a capsule when feeding of medicated mash is started. It was thought that if this were done, the effectiveness of treating birds with sulfaguanidine after infection has taken place might be increased.

The preceding experiment was repeated and the administration of 0.5 grams of sulfaguanidine to each chicken, when the 0.5 per cent or 1 per cent sulfaguanidine mash feeding was started, added to the procedure. The results with groups for which treatment was begun on the same time or a day preceding inoculation were essentially the same as in the preceding experiment. In addition, very encouraging, although not conclusive, evidence was obtained of considerable benefit when treatment was not started until the second or third day after inoculation. When the beginning of treatment was delayed to the fourth to sixth day after inoculation, little or no benefit was derived.

These experimental results indicate that sulfaguanidine may be of practical use in the control of outbreaks of cecal coccidiosis on poultry farms. To determine this, it wi be necessary to conduct controlle trials on infected farm flocks. E periments to determine if the dru may be of value in the treatment intestinal coccidiosis are in progres Sulfaguanidine has not yet been r leased for general veterinary use an is at present quite costly. Should th future demand require large-scal production, however, it is likely tha the cost would be greatly reduced.

## *Nest That Saves Eggs*

To reduce the number of soiled and broken eggs, F. A. Siefring of Darke county, Ohio, uses a nest designed by John S. Leedy, another Ohio poultryman living in Sandusky county. This nest has a bottom of hardware cloth. It pushes into the nest battery like a drawer, and has a slope so the egg rolls to the front as soon as it is laid. Nests are 10 inches wide and 18 inches long. The front 8 inches is under the landing board, to which hens fly to enter the nest.

Siefring gave his nests 1 inch of slope for each 12 inches of length, but says it would have been better if he had used 1½-inch slope instead. The side members of the nest are rounded at the lower end, and th hardware cloth bottom curves around them to make the end. An egg rolling down the slope is stopped when it starts up the steep-end slope Eggs rolling against any other type of end would be cracked. The landing board is hinged so it may b lifted to gather eggs. Siefring produces for a quality market, and find eggs begin cooling as soon as laid i a Leedy nest. When he found pullets disliked the nests, he put in thin covering of straw, and did no replenish it when they wore it ou and worked it through the wir mesh.

—Capper's Farmer, January, 1942.

POULTRY losses in the vicinity of Ionia, Mich., have been traced to a pet fox Farmers recently shot a fox which wore a collar, indicating it had been a pet at on time, say newspaper reports.

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# Uncle Sam—Egg Grader

By C. W. KITCHEN

Chief, Agricultural Marketing Service

*Reprinted from Poultry Tribune*

IF we were gifted with X-ray vision — the kind of eyesight capable of penetrating the white or brown shells of the eggs we buy or sell—most of our quality problems would be solved. As poultrymen, we would insist on a fair price for the large, clean, fresh eggs we took so much time and effort to produce. As distributors, we would eliminate excessive handling costs and carry a better product for our customers. As consumers, we would match the quality received with the price paid.

Even though none of us has X-ray vision, the Federal-State egg grading service, maintained in Ohio, Michigan, and a few other states, has proved to be a good substitute.

### Grading Means Higher Prices

Today, the majority of large-scale producers in states where the grading service is available are marketing their eggs on a graded basis. They are finding that it pays dividends. The supervisor of Federal-State egg grading work in Ohio, Ray C. Wiseman, has reported that New York quotations on top-quality eggs were about nine cents higher than quotations on eggs of similar quality at the Cleveland market before the egg grading program was started. But the demand for good eggs has increased within the state and the spread has been narrowed to an average of about five cents. In other words, the grading program has meant an average gain of about four cents to producers of top-quality eggs.

William M. Cate, Federal-State supervisor in Michigan, has made studies indicating that the egg grading service has increased returns to producers in two ways: Producers selling their eggs through the grading stations have netted 2½ cents a dozen more than the current buying price; and the current buying price in localities served by egg grading stations is 2 cents or more higher than in territories where grading is not available.

### Others Benefit, Too

The benefits of the grading program in Ohio and Michigan have not ended with the producer; they have worked right along through the marketing process. Dealers, for example, are insisting that farmers pay more attention to the care of their eggs, and the dealers themselves are following better methods of handling

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Poultry Tribune, March, 1942)

and buying. When it comes to buying, dealers are "grading" producers into two classes—those who produce poor eggs and those who produce good eggs. More and more dealers are buying on the basis of quality.

In the past, retailers who wanted to sell their customers good quality eggs were at the mercy of the wholesaler, because they had to accept his grades. Thus, the retailer had to depend on reports from his customers as to whether he was handling good, mediocre, or poor eggs. Today, the retailer wishing to buy good quality eggs can purchase Government graded eggs. Then, if he suspects that the eggs are not up to grade, he can call for a reinspection to determine definitely whether he is being treated fairly.

### Meet Consumer Preference

Government graded eggs are right down the consumer's alley. The quality is uniform within the grade and consumers are able to buy according to quality and to pay a commensurate price. Three grades of eggs are identified by label for consumers—U. S. Specials or Retail Grade AA; U. S. Extras or Retail Grade A; and U. S. Standards or Retail Grade B. Each retail carton is sealed with a certificate of quality or grade label that shows the grade and the date when graded.

The Federal-State egg grading service in Ohio has created a greater demand for high quality eggs within the state than the organizations using the grading service have been able to supply. The poultry industry, by this token, has learned that consumers are willing to pay high prices for high quality eggs, and that producers are willing to improve their production methods if they are rewarded and encouraged.

### Service Available at Cost

The Federal-State egg grading service, in the states where maintained, is available at cost to any organization, firm, or person handling eggs—and this service could be made available in every state where there is a sufficient volume of grading work to maintain the necessary organization for conducting it. The principal requirement is the signing of an agreement with the U. S. Department of Agriculture and the State Department of Agriculture or some other non-marketing agency in the state which is equipped to handle its part of the agreement. Under the agreement, the owners or managers of the egg grading stations pay into a grading fund an amount equal to the salary of the licensed grader plus 15 per cent, which goes to reimburse the cooperating agencies for the cost of carrying on the service. The operators of the stations also agree to abide by whatever regulations are issued by the U. S. Department of Agriculture pertaining to the proper grading of eggs and the issuance of quality certificates.

The egg grading stations — 20 in Ohio and 25 in Michigan—are the buying points. The stations are provided with well trained, unbiased candlers and graders who are on the payroll of, are licensed by, and are responsible to the U. S. Department of Agriculture's Marketing Service. The candlers and graders are under Federal-State supervision.

### Quality Revealed at Station

The grading station is the producer's principal point of contact with the service, for it is here that he sells his eggs. And it is here that good quality or poor quality is brought into the sharpest focus.

At the grading station, the producer's eggs are run through a preliminary sorting process. The sound eggs are placed in separate cases on the basis of color—white or brown—and size — large, medium, or small. Quality, or the factors having to do with the interior of the egg, must be determined by candling. This consists of holding the egg before a light of proper intensity in such a way that the rays penetrate to some depth, thus enabling the condition of the contents to be noted. Grading for size, candling for quality, and condition of shell determine egg value.

The individual egg may be placed into one of four quality standards—U. S. Special, U. S. Extra, U. S. Standard, and U. S. Trade. These are for clean sound-shelled eggs, though standards are also established for eggs with checked or dirty shells. Quality factors include the condition of the shell, the depth of the air cell, the position of the yolk, and the consistency and clearness of the white.

To meet the specifications for the U. S. Special Grade, the top grade, the egg must have a shell that is clean, sound, and normal. The air cell must be one-eighth inch or less in depth and must be regular. The yolk must be well centered, of indistinct outline, of sluggish motion when the egg is twirled, and free from visible germ development and other defects or blemishes. The white must be firm and clear. These specifications, of course, are graduated downward for eggs in the lower grades.

### Helps Raise Producer Standards

All of the factors that make eggs more or less desirable to consumers are taken into consideration at the grading station, and they are reflected in the price the producer receives. Many producers, after noting the prices received by their neighbors for eggs of high quality, have left the grading station with the firm resolve to improve their egg-producing practices. This, in itself, is one of the more significant developments of the egg grading service.

# Don't Blame the Feed

**By E. E. CLORE**

Greenwood, Indiana

*Condensed from The Feed Bag*

THERE are a number of diseases in chickens that have visible symptoms which might indicate to the individual who is not properly versed that, perhaps, the feed being used was causing the trouble.

Pullorum disease, coccidiosis, cholera, and possibly a few other conditions, might confuse the individual unless he understands fully the post mortem examinations and all of the symptoms attached to these diseases. Pullorum disease in baby chicks is often blamed on starting mash because the chicks paste up and show evidence of bowel trouble. This disease occurs during the first three weeks of the chick's life and has no connection whatever with the feed that is being fed. In many cases, the farmer changes his mash about the time his chicks quit dying and the starter mash that was used will always be in disrepute so far as that farmer is concerned.

Pullorum is transmitted from the hen through the egg. The responsibility for controlling this disease and keeping the blame from the feed lies wholly on the shoulders of the hatcheryman.

Coccidiosis is a disease that affects growing chicks from 4 to 12 weeks of age and is characterized by bloody droppings, ruffled feathers, emaciation, lack of appetite and a high death rate if the disease is not checked quickly. Bloody droppings is a cue again for the untrained individual to blame the starter or grower. It is possible, too, that an unscrupulous competitor might tell the farmer it is the feed and at the same time give the chicks the coccidiosis treatment and sell him some other feed. The chickens mend quickly and the first starter or grower is always the cause of the disease so far as that farmer is concerned.

Feed has nothing to do with coccidiosis. It can start in a flock regardless of the kind of feed that is being used. Sanitation and medical treatment easily and quickly correct the condition. Always advise the farmer that the feed is not to blame.

Cholera in hens has characteristic symptoms, but quite frequently the farmer is prone to believe some feed he is using is a predisposing, causative factor. This is not true. The feed has nothing to do with it. The diarrhea that is present always causes the untrained individual to suspect feed, and again the manufacturer's feed usually comes up for criticism. The symptoms and post mortem lesions are outstanding and should never be mistaken.

To show you just how often the layman unjustly criticizes the feed he is using, at a time when a disease is present in his poultry or livestock, I give you this example. One of our farmers called me one day and told me he had lost 15 hens the night before and naturally he was upset about it. I immediately went to the farm and found the 15 dead and five or six more ready to die. While I was there three or four more became sick.

After posting one or two, I found cholera in a very severe form. It was the acute type that kills quickly. The farmer, in order to establish a cause, decided in his own mind that whole oats had caused his trouble. The feed man, of course, was lucky in this particular instance in that the farmer did not blame the laying mash he was using. He blamed the whole oats. I immediately told him that the oats had nothing to do with it, that it was a disease, and could be straightened up as quickly as it came on the farm if he used the proper sanitary measures.

I advised him to thoroughly clean and disinfect, which he did, and the disease soon disappeared. That man however, believed for a long, long time that whole oats were responsible for his trouble. Now he is feeding them again regularly and has changed his mind.

You can readily understand what would have happened in a case of this kind if this farmer had seen fit to blame the laying mash . . . and he would not have changed his mind so quickly if he had chosen to blame it on the laying mash rather than the oats.

From "Do Feeds Kill Livestock?"
Presented at Indiana Grain Dealer's Association convention, Jan. 26 to 27, 1941.

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## *In the Production Line of Defense*

Whatever 1942 holds for us, we know that it will make large demands upon us and challenge our faith and courage to a degree perhaps never before known. Overnight, life has assumed a new seriousness for us all. The immediate response of America to the first shock of war, however, leaves no doubt as to our determination in the struggle ahead of us. Each in our own place, we shall carry on, no matter what hardships we may have to endure, or what sacrifices we may be called upon to make.

For perhaps a majority of poultrymen, our place will be in the production line of defense, which will mean carrying on where we are and with what we now have. There will be very little glamour or excitement about it. It will be the same old job, but with a new intensity and a strong new compulsion.

Whether or not we can induce our birds to work longer hours, we may have to work longer hours ourselves, and we shall also have to learn to make our work count for the utmost. Since, as poultrymen, we work so largely under our own direction and initiative, and without the advantage of large-scale planned organization, it will be up to us to do our own planning in such a way that the result may play a real part in strengthening the nation's resources.

All successful production depends in the first instance upon skillful planning and nowhere is this more true than on the poultry farm. We must plan now for our whole year's production and fix it so that, as nearly as possible, every bird in our flocks is an efficient unit of production.

This means not only that we must plan our whole management program so that production is maintained at a good level from our present birds, but thought must be given to next fall and winter, and to the necessary replacements that will have to be made at that time.

Orders for additional equipmen had better also be placed immediately, so that there may be no hold-u when the brooding season begins.

This would be a particularly goo season to plant all the green pastur the farm will carry on which to rea the young stock. Birds are not onl better raised out of doors on gree pastures, but they are far mor economically raised. Good planning especially as help may be harder t obtain and that obtainable les efficient, might include adoption of every possible labor-saving device and careful scheduling of all activities so that no steps are wasted no time lost in double actions.

It seems fairly certain that th poultryman will receive a reasonable measure of protection so far as egg and poultry prices are concerned and a fair break in the availability of his basic feed and other supplies. In return, it is up to the poultryman t see to it that he does not fall dow and that, with every other citizen he does his full share to secure th national defense and to hasten fina victory.

—Edmund H. Reeman, New Jersey Far and Garden, January, 1942.

CHICKEN soup cost George Wieland, Chicago, Ill., $25, says the Associated Pres Wieland ordered chicken soup at Thomas Pappas' restaurant. Pappas testified tha Wieland attacked him with a knife because the soup had no chicken, but that th soup shouldn't have had chicken anyhow, because it was chicken noodle soup. Wielan explained that he ordered chicken soup, wouldn't eat chicken soup with no chicke and that Pappas became angry and attacked him. The judge took Pappas' word; fine Wieland $25.

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# Chickens on Shares

*Reprinted from Farm Journal*

THE best baby chick story I know about was hatched out in the Shenandoah Valley of Virginia. Farmers around Harrisonburg, county seat of Rockingham county, are putting out 3,000,000 baby chicks each year, and more than 2,000,000 of these are raised on shares. The plan, briefly put:

A farmer gets chicks, feed, fuel and litter from a nearby feed company or hatchery. When the chicks are raised and sold in fall he pays for chicks, feed, fuel, and litter. Out of what is left, he gets three-fourths and the dealer one-fourth.

This share plan started nearly 10 years ago with Charles W. Wampler, who had given up his job as county agent and, with his brother, had gone into the farm supply business. A farmer proposed to him that they raise some chickens on shares and divide the profits. Without any precedent, they thought a 50-50 split would be about right after taking out the cost of chicks, feed, fuel, and litter.

### How the Plan Works

"My brother said we should have nothing to do with it," Mr. Wampler relates, and so he decided to handle the matter on his own.

"When we settled up in fall, I had $300 for my share," he says. "I showed it to my brother and told him that if he hadn't been so set in his ways, half of it would have been his. Then he became interested and we decided to do more with the idea."

On the basis of that first transaction, they agreed that the grower ought to have a bigger share, say two-thirds instead of half, and that's the basis on which the share plan got under way. Later they raised the grower's share to three-fourths (after paying for chicks, feed, fuel, and litter). Other firms have put the plan to work around Harrisonburg.

### Personal Element

The reason the share plan has worked, Wampler contends, is the high regard which farmers in that area have for their obligations. For the most part, operations are carried on without a written contract. There is no chattel mortgage on the chicks. A simple contract is written when a flock-owner gets his first batch of chicks. This is never rewritten. If it turns out that a farmer is not reliable, he is dropped.

A similar share plan is followed with turkeys. (Harrisonburg is the "Turkey Capital" of the Shenandoah Valley "Turkey Empire"). There is one difference. Instead of the grower getting three-fourths of

Farm Journal, Inc., Washington Square, Philadelphia, Pa.
(Farm Journal, March, 1942)

the proceeds (after costs are out), he is given a guarantee of 5 per cent of the gross receipts from poults raised, and in addition, he receives 60 per cent of the proceeds after cost of poults, feed, fuel, and litter are taken out.

Another chickens-on-shares plan that has flourished is being used by junior flock-owners in Tennessee. It started in Lawrence county in 1939 when the Lawrenceburg Lions Club sponsored a plan for putting out baby chicks to about 300 4-H'ers and Future Farmers (50 chicks and 50 to 100 pounds of starting mash to each one). Now the plan has spread so that 4,000 young farmers are raising a quarter of a million chicks a year on shares.

### Cockerels Pay the Obligations

Each boy or girl who gets 50 chicks signs an agreement to return ten or 12 of the best cockerels at the end of 25 weeks as payment for chicks and feed. If a person gets more than 50 chicks or 50 pounds of mash, the number of cockerels to be returned is increased accordingly. Flock-owners agree to feed all the mash, to raise the chicks as directed by county farm and home agents or vocational teachers, and not to eat or sell any chicks until final settlement.

This plan was in operation in 25 Tennessee counties in 1941, and it looks like it will be used in 50 counties this year. Business groups, civic clubs, and banks are using the plan to get young folks started in poultry, and thus help to reach Secretary Wickard's poultry and egg production goals. For the most part, utility breeds are used. An effort is made to interest each community in a single breed. Pullets are kept on the farm as foundation stock for a purebred flock.

### A Carload of Barred Rocks

When poultry is ready to sell in fall, the junior flock-owners really make something out of it. In Lawrence county, for instance, the 300 flock-owners held a two-day poultry festival, featuring a parade with floats and a festival queen. They delivered 3,000 cockerels, which were sold for 14 cents a pound (1940, that was).

In Obion county, 270 boys and girls delivered 3,826 Barred Rock cockerels to make up a solid carload shipment to New York, where the birds sold for $2,024.42—a profit of $641 above cost of chicks, feed, and marketing. In most cases, the cockerels are sold at auction to local produce dealers, who are able to pay a premium because of volume, uniformity, and quality.

Still another plan for raising chickens on shares is being used here and there in the Corn Belt by produce buyers who have difficulty getting enough birds of the quality they want for their packing plants.

For example, there is a hatchery at Boone, Iowa, which is operated in connection with a produce buying firm. Two years ago the hatchery manager, Earl Baron, started a project with 1,600 high-grade New Hampshire chicks to prove his contention that there is a definite profit in raising poultry, if you have good chicks, good management, and sound feeding. Since that first venture he has started other projects. Results have verified his belief. Mr. Baron outlines the plan:

"We start a farmer with 2,000 chicks. These are placed in five 12 by 16 brooder houses, 400 to each house. We separate them at six to seven weeks of age into five other houses, keeping the pullets and roosters separate and carrying these birds until they reach market weight. We have found we can successfully run through four batches each year—two bunches to roaster weight (five pounds) and two bunches to frying weight (three pounds).

### Method of Financing

"As to financing, we supply baby chicks, commercial feed, and supervision. We feel that supervision is the most important part; that represents the difference between profit and loss. We also supply the brooder houses and electric brooder stoves.

"The poultry grower furnishes all the grain (such as oats and corn), the miscellaneous equipment (such as feeders and waterers) and all labor.

"We keep records (so does the flock-owner) on each project. We find it takes approximately 220 hours of labor to take care of 2,000 chickens to roaster weight.

"The houses are constructed of insulating material, round roof, with removable ends — one set solid for winter use, the other with wire for summer use (which makes a combination brooder and summer range shelter). We use 12½ gauge wire floors (1 by 2-inch mesh), laid over 2 by 4s on 16-inch centers, which eliminates the litter problem. To start the chicks, we use tough waterproof paper until the chicks are six weeks of age. On this paper we use cottonseed hulls for litter (at the start).

### 75:25 Division

"This being a partnership plan, the proceeds are divided when final sales are made. The flock-owner gets 75 per cent of the net profits; we get 25 per cent. Each project costs the grower about $250. Our investment is around $1,100. The average profit to the grower has been around $235 for 2,000 chicks.

"Starting the chicks with a starting feed, then changing to a balancing feed at six weeks, enables the farmer to use a maximum of home-grown grains.

"To avoid breast blisters, chicks must be roosted at six weeks of age. We are using 1 by 3-inch boards laid flat on the floor, lengthwise of the house."

# Barebacks Result from Mating Instinct

### By FRED J. GOGGIN

*Condensed from the Peninsula Broiler Journal*

BAREBACKS, a problem which is particularly serious in broiler flocks during the spring months, are neither a breeding or feeding problem. Rather, the barebacked condition, is a result of feather picking, which, in turn, occurs in response to the mating instinct inherent in cockerels.

If barebacks were caused by breeding or feeding, why do we find the condition principally in the four spring months, rather than the year around? And why is 95 per cent of the trouble confined to cockerels?

During the period from mid-March to mid-July, cockerels become restless and quarrelsome and engage in continual fighting. It is my opinion that this is due to the mating instinct. The sexual instinct drives the birds into action, and entire flocks have been observed in which cockerels are extremely violent—and the picking habit starts and stops at dates which coincide with the normal mating season. As soon as hot weather comes, birds become more listless, fighting stops, and the feather-picking habit disappears.

Some years the trouble is more serious than others. If we have cold, rainy spring, which merge rapidly into summer, we find few barebacks. If, on the other hand, we have an early, warm spring, the mating instinct is much more pronounced among the cockerels, they become more active, even frenzied at times, and we find a high percentage of barebacks.

Overcrowding seems to accentuate the condition. With mortality normally lower in the spring, more birds remain in a house, and crowding is more serious.

If something could be found which would reduce the mating instinct among cockerels in the spring months without interfering with their health or growth, much of our trouble with barebacks would disappear. As it is, we will continue to have barebacks, with the severity of the trouble dependent upon the season and degree of overcrowding.

Nakedness is quite another matter, but is so rare as to be of little commercial importance. Naked chicks are cull chicks to begin with, lack vigor and strength, and are in no way related to barebacks as we speak of them.

The Peninsula Broiler Journal, Shelbyville, Del.
(Peninsula Broiler Journal, Feb. 2, 1942)

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# *Poultry Perpetuates Tuberculosis in Livestock*

Some time after the program to suppress and eradicate tuberculosis among cattle was inaugurated in 1917, it became obvious to live stock sanitarians that tuberculosis among poultry was acting as a reservoir of infection for some other farm animals, particularly swine and cattle.

Van Es at the University of Nebraska was the first to make a comprehensive study of this problem and demonstrated that tuberculosis among poultry has a rather significant bearing on the problem of eradication of this disease from our farm animals. Other investigators and research workers have contributed to our knowledge so that there is now available a large volume of useful information on this subject.

In some sections of our country, packers have focused attention on this problem by their complaints that too large a percentage of swine carcasses are being condemned because of tuberculosis, largely of avian origin. This has resulted in sporadic efforts toward control of tuberculosis in poultry. Likewise, it was found that as progress was made in the eradication of the disease from our cattle herds, the incidence of skin tuberculosis in cattle largely of avian origin became much more obvious and was a factor in delaying satisfactory eradication of the disease in cattle.

Extended surveys have formed the basis for a reasonably accurate tabulation of the distribution and sectional prevalence of tuberculosis in our farm poultry. This information indicates that the greater prevalence of avian tuberculosis occurs in the north central states, an area which forms a large part of the region commonly referred to as the "corn belt." In some of this area, the number of poultry flocks found infected has run as high as 85 per cent of the flocks in the area. In larger sections in some states, tests of the poultry have revealed a 40 to 50 per cent flock infection.

Unfortunately, this area of higher incidence of tuberculosis in poultry is the greatest egg and poultry meat producing section of our country. This is of particular and more than ordinary interest at this time when there is an urgent need not only for more poultry products but also for reducing the condemnations of swine carcasses to help meet the greater demand for pork products.

A program for the control and eradication of tuberculosis in our poultry industry would be desirable not only for the direct benefit to that industry but also as a means of conserving and protecting the human food supplied by our other farm animals.

—C. R. Donham, 1942 Indiana Poultry Blue Book.

# Using Broadbreasted Turkeys

By V. S. ASMUNDSON
University of California

TURKEY growers have become quality conscious during recent years. This is shown by a decided preference for various improved strains of turkeys. The interest in improved turkeys is also reflected in the many questions about the comparative merits of the different types of improved turkeys.

To obtain answers to some of these questions, the Division of Poultry Husbandry of the California Agricultural Experiment Station at Davis procured stock of improved strains of Bronze turkeys by obtaining eggs and poults from different sources. Some of these strains were crossed in 1941 and the results are now available. They are summarized in the table herewith.

The birds of Strain A were comparatively large and broadbreasted birds; those of Strain B were medium-sized and narrower breasted but nevertheless well-fleshed birds. The length of shank was about the same for the two strains but the larger birds in Strain A had longer keels, deeper bodies, and wider breasts than those in Strain B.

### Crossbred Progeny Differ

The progeny obtained by crossing these two strains differed slightly according to the way the cross was made. Strain B females mated t Strain A males produced comparatively longer legged, deeper bodied but narrower breasted birds than th reciprocal cross of Strain A broadbreasted females with Strain B males. The length of the keel was approximately in proportion to size in each case.

The results of observations made so far indicate that broadbreasted strains are uniformly wider and rounder in the breast than other strains. When broadbreasted turkeys are crossed on the smaller strains, the progeny will be intermediate in size but usually somewhat closer to the larger parent. The progeny of such matings also tend to be intermediate in breast width between the parent strains but may be expected to vary according to the quality of the parent stock used.

### Don't Breed Crossbreds

Since some matings of broadbreasted turkeys with those of other strains produce progeny that are apparently equal in breast width to the broader breasted parental strain, there is a temptation to use such birds for breeders. This is a mistake, since the second generation raised from such first crosses is likely to be extremely variable. It would, therefore, be better to either buy enough eggs, poults, or stock of the improved strain to furnish all the breeding birds needed or to use only males of the improved strain for three generations before using any of the hybrid males for breeding.

### Lower Fertility in Large Birds

Contrary to popular opinion, there is no good evidence to show that typical broadbreasted birds carry a higher percentage of flesh on the carcass than well finished, equally large birds of other strains. There is nothing to indicate that the broadbreasted will necessarily differ in any way except width of breast from other strains. Certain tendencies observed, such as slightly lower fertility, may be characteristic of large turkeys, regardless of body conformation.

More dependable comparative data are needed on this and other points before it can be decided whether or not the typical broadbreasted turkey is the most suitable market type available. In the meantime, the interest in broadbreasted turkeys is doing much to increase the proportion of superior market turkeys raised.

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that was responsible for low fertility.

—H. E. Cosby, Eggsaminer, February, 1942.

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More dependable comparative data are needed on this and other points before it can be decided whether or not the typical broadbreasted turkey is the most suitable market type available. In the meantime, the interest in broadbreasted turkeys is doing much to increase the proportion of superior market turkeys raised.

**Weights and Measurements for 24-Week-Old Turkey Hens from two Strains of Bronze and Their Crossbreds**

| Strain | Avg. Wt. | Shank Length | Keel Length | Depth of Body | Width of Breast* |
|---|---|---|---|---|---|
| | Pounds | Inches | Inches | Inches | Inches |
| A | 12.4 | 6.2 | 6.4 | 7.6 | 2.3 |
| Crossbred B Fe. x A Ma. | 12.1 | 6.4 | 6.3 | 7.7 | 2.1 |
| Crossbred A Fe. x B Ma. | 11.7 | 6.2 | 6.2 | 7.5 | 2.3 |
| B | 10.7 | 6.2 | 5.9 | 7.5 | 2.0 |

*Measurement taken at point .8 inch above keel.

# *Fertility and Hatchability Confused*

We should not confuse fertility with hatchability. Fertility for the entire lot of eggs may be low and yet high hatchability of the few fertile eggs may prevail. Low hatchability might prevail in a lot of eggs that showed high fertility. There are interlocking relationships between the two, but the fundamental factors which govern fertility differ from those which control hatchability. For example, it is not difficult to build a ration that will result in poor hatchability of fertile eggs. It would be much more difficult to find in the average poultry diet a feed that was responsible for low fertility.

—H. E. Cosby, Eggsaminer, February, 1942.

# Care of Turkey Breeding Flocks

By **NOEL L. BENNION**
Oregon State College

TURKEY growers who are keeping breeding flocks are primarily interested in producing a large number of fertile eggs that will hatch a high percentage of strong, vigorous poults. There is no correlation between fertility and hatchability and yet the two are bound together in a sense that there can be no hatchability without fertility.

Experimental results have shown that hatchability is an inherited characteristic which is also influenced by many environmental factors. It seems that fertility is not an inherited characteristic, but is influenced by many factors.

### Method of Feeding

In order to obtain high fertility and hatchability the breeding flock must be in good physical condition. If the birds are thin and run down or overly fat, both hatchability and fertility will be reduced.

After the breeders have been selected, they should be put in a group by themselves and given a ration consisting of free choice of growing mash, scratch grains, and green feed. If the birds appear to be getting overly fat, the feed intake, mash and scratch, can be reduced 15 to 20 per cent. From four to six weeks before hatching eggs are desired, the breeders should be changed from a growing mash to a breeder mash. It has been definitely established that turkeys require more vitamin A and vitamin D than do chickens, therefore a chicken breeder mash is deficient for turkey breeders. Of the various mashes fed, the breeder mash is the most important, because it contains an additional supply of vitamins A, D, and G, which are essential for high hatchability of eggs and livability of poults.

After the breeders have been changed from a growing mash to a breeder mash, they should have free access to oyster shell. In addition, an adequate supply of green feed is more important than ever. During the hatching season they should consume approximately 50 per cent of their ration in mash and 50 per cent scratch, by weight.

### At Least Eight Months Old

Turkey breeders, both males and females, should be at least eight months of age when the hatching season starts. Without the use of artificial lights, breeder hens will usually start to lay about the first of March. This means that June hatched poults can be used as breeders. However, if earlier eggs are desired, the breeders should be hatched accordingly.

Speaking of early eggs, there is no question but that they can be obtained through the use of artificial lights and shelter. Where lights are used, they should be started about four weeks before eggs are desired. Toms respond to lights slower than the hens, so, to obtain maximum fertility, they should be lighted four weeks before the hens with which they are to be mated. A 13 to 14-hour day should be provided. The lights should have reflectors and be placed over the roosts and feed hoppers fairly close to the birds. Dim lights at considerable distance have little effect on production. Lights will stimulate production without shelters, but shelters are a valuable aid in getting early eggs, especially in bad weather.

### Lights and Hatchability

There has been considerable discussion as to whether the use of lights and shelter will reduce fertility and hatchability. Where proper conditions are provided and the birds are in good physical condition, lights and shelter seem to have little influence on fertility and hatchability. Extremes in temperature and improper management will reduce these factors regardless of what system is used.

There are several different methods used in handling toms during the breeding season and there seems to be no one best system. The main thing is to have plenty of toms. Rotating them seems to produce better results. Regardless of the system used, the male birds should be placed with the hens at least 30 days before hatching eggs are saved. Some producers keep two sets of toms, one set is used during the first half of the season and then replaced with a fresh supply during the remainder of the season. Others divide their toms in two or three groups and rotate them every other day or every few days.

### Letting Hens Run to Toms

A system that has been used with fairly good success is to build individual pens 10 to 15 feet square for each male. The pens should be enclosed on at least two sides, to prevent interference with mating and fighting, and the fronts arranged so the hens can pass through freely while the toms are confined. With this system, the feeding should all be done in the pens where the toms are located, or else have it arranged so the hens have to pass back and forth through the pens for feed and water. Where the pen system is used, the toms should be rotated also.

Hens mate most frequently prior to the time they start to lay a clutch of eggs. For this reason, it is desirable to place one or two toms in each broody pen to increase the number of matings at this time to improve fertility.

Regardless of how the breeders are managed, it is difficult to obtain high fertility with extremely large, awkward, unbalanced, inactive male birds.

The quality of eggs and manner in which they are cared for have a direct bearing on hatchability. Eggs of good quality will hatch better than eggs of poor quality. Medium sized eggs will hatch better than extremely large or small eggs. Eggs with a thick albumen will hatch better than eggs with a thin watery albumen, and clean eggs will hatch better than dirty ones. Tremulou air cells will reduce hatchability.

Hatching eggs should be gathere five or six times each day and kep at a temperature from 45° to 60° There is a slight reduction in hatchability when eggs are held longe than seven days. After 14 days th reduction increases quite rapidly. I is a good practice to turn the egg once a day while they are being held for hatching.

## *Easter Bunnies and Easter Eggs*

A tiny tot and a basket of gaily-colored eggs delivered by the bunny rabbit are symbols of the Easter that Americans know. So traditional are these novelties that few realize their origin.

It all started in the Far East thousands of years ago, when the Persians exchanged eggs at their "New Year's" spring festival, which, by the old calendar, coincided with the Easter festival. To these people, the egg was a symbol of birth, resurrection, or creation—perhaps the re-creation of spring.

Strange as it seems, the coloring of eggs isn't a sentimental pastime of modern vintage. Even the ancient Persians colored eggs. Originally, this process represented the new colors which spring brought with it. Centuries ago eggs were chiefly painted red, by some in honor of the blood of Christ, by others to represent joy after the 40-day Lenten fast, during which, in times past, eggs were not permitted to be eaten.

The Easter Bunny's history, though somewhat vague, goes back to ancient Egypt, where the name for "rabbit" or "hare" also meant "to open," and was probably used as a symbol of the spring festival that opened the new year of life and hope.

—MacFarland, Aveyard and Company News Release, Feb. 26, 1942.

◄◄ BRITISH poultrymen have requested the release of Japanese chick sexors, interned since December 7.

# POULTRY RESEARCH

### Listeriosis in Fowls

The bacterium Listeria was successfully isolated from a White Leghorn pullet by R. H. Hurt, Norman D. Levine, and Robert Graham at the University of Illinois, says a report in the American Journal of Veterinary Research (Vol. 2, No. 4). This is but the second report of the isolation of Listeria in flocks in this country, but it is probable that the disease will be recognized more often in the future.

### Fowl Leucosis Transmission

Fowl leucosis can be transmitted through chick embryos to chicks either by tissue suspensions or blood, report W. J. Hall, C. W. Bean, and Morris Pollard of the U. S. Department of Agriculture's Beltsville (Md.) Experiment Station in the American Journal of Veterinary Research (Vol. 2, No. 4).

There are indications that leucosis (strain A which was obtained after 17 serial passages) is filtrable. The strain infected chick embryos only when inoculated intravenously.

### Gizzard Lesions in Chicks

Under a good feeding and management program, there appears to be no significant relationship between incidence of gizzard lesions in day-old chicks and subsequent growth, livability, and efficiency of feed utilization to 12 weeks of age, report A. E. Tepper and H. R. Bird of the University of Maryland in Poultry Science (Vol. 21, No. 1).

The disease is widespread throughout the country, and was found in chicks from all hatcheries studied. Growth, livability, and efficiency of feed utilization is normal, even though chicks have gizzard lesions as day-olds, when chicks are properly managed.

### Sulphur for Coccidiosis

A ration containing 2 per cent flowers of sulphur plus 5 per cent No. 10 oakwood charcoal was essentially equal to a ration containing 5 per cent flowers of sulphur in tests carried on by O. E. Goff at Louisiana State University, says a report in Poultry Science (Vol. 21, No. 1). Up to 5 per cent flowers of sulphur was fed to chicks four weeks of age or older for a two-week period with no bad effects. Charcoal alone in a basal ration, in the absence of sulphur, was of no benefit in preventing coccidiosis.

### Parasite Control

A new parasiticide consisting of a 5 per cent solution of lauryl thiocyanate to which has been added either alkyl-aryl-sulfonate or saponified neutral potash cocoanut fatty-acid soap, has been found highly effective in killing mites and ticks in infested poultry houses in tests at the University of California. The report in Science: Servant of Agriculture, July, 1940, states that field tests must be carried out to confirm the findings before definite conclusions may be drawn. If found satisfactory, the mixture can be made available to poultrymen at very reasonable cost.

### Cockerels Mate Successfully at 24 Weeks of Age

Both White Leghorn and New Hampshire cockerels were found capable of fertilizing females at 24 weeks of age in tests carried on by Jesse E. Parker, Fred F. McKenzie, and H. L. Kempster of the University of Missouri, says their report in Poultry Science (Vol. 21, No. 1). Testes of Leghorns contained spermatozoa at 12 weeks of age, but the earliest age of fertilization reported was for a 16-week-old cockerel.

### Vitamin Interaction

Interaction of vitamins has been observed long ago. The subject is an important one and is quite likely to become the next important phase of vitamin research. A. W. Davis of the Dunn Nutrition Laboratory, Cambridge, England (Nature 147, 794) observed that vitamin E has a sparing action upon the depletion of vitamin A stored in the liver.

—Carl H. Schroeder, Everybodys Poultry Magazine, March, 1942.

### Moldy Corn Studied

Moldy corn has long been suspected by the practical feeder as having a lower feeding value and, possibly, a toxic effect. The few experimental studies recorded report contradictory results which can readily be explained that not all moldy corn is toxic and that, toxic or non-toxic, the specific mold was never identified.

Dr. H. H. Mitchell and J. R. Beadles of the Illinois Experiment Station (Jl. Agr. Research, Vol. 61, No. 2) studied each of the three most common molds and found that mold-damaged corn contained 25 per cent less fat, but more minerals, fiber, and nitrogen than sound corn. These differences are attributable to the destructive action of the molds and to the nutrients of the molds themselves. The germ seems to be the most vulnerable part of the corn. The gross energy of moldy corn was reduced by 13 per cent. One of the three molds investigated was extremely toxic when fed to rats and in the absence of any evidence to the contrary, it is well to consider it harmful to poultry.

—Carl H. Schroeder, Everybodys Poultry Magazine, March, 1942.

### Turkey Capons

Turkey capons show no advantages over normal turkey toms. G. P. Goodearl and F. E. Moore of the North Dakota Experiment Station conclude from a comparative test that weight gains, feed consumption, and fleshing features were virtually the same for turkey toms and capons. Market grades were higher for the capons, but the capons tend to go to market as toms. There are no external features by which turkey capons can be distinguished from toms or "slips." The operation, performed at 10 weeks, proved to be more difficult than with chickens.

—Carl H. Schroeder, Everybodys Poultry Magazine, March, 1942.

## *Cannibalism and Feather Pulling*

In the last few years trouble from cannibalism and feather pulling has increased. Many of our experiment stations have worked on this problem without too great success but many interesting observations have resulted.

On one large commercial plant, where thousands of chicks are started in batteries annually, trouble was experienced every season with toe picking, feather pulling, and cannibalism. An approved ration was used in which all ingredients were finely ground. Increased ventilation and humidity, red paint on the windows and reduced light failed to stop the trouble. The same ration was then coarse ground and after 10 days of feeding the coarser ration the chicks appeared less nervous and picking was greatly reduced.

The experiment station in this state carried on a free choice feeding experiment. Oats was the grain and it was milled in 5 different ways. All 5 oat products were placed before the birds at the same time allowing free-choice feeding. The heaviest consumption was from the rolled or crushed product, while the fine hammer-ground oats were not eaten at all. A similar experience was met with in the feeding of alfalfa. When alfalfa was fed as hay, everything was eaten except the coarse stems. If the alfalfa was ground fine in a hammer mill and fed in separate containers the birds would not eat it.

The fine grinding of feeds seems to be objectionable only in those feeds that are high in fibre. However, fine grinding may produce a product that is acted upon to only a slight extent in the gizzard, passing almost directly to the intestines where the fine fibre particles irritate the mucus lining of the intestines. This constant irritation reacts with nervousness causing picking trouble.

—R. Conolly, Michigan Farmer, Feb. 7, 1942.

## *Provide a Grass Range*

When at all possible, get your pullets out on a good grass range Probably the best feed we can supply growing pullets is tender young grass, be it a grass sod or a succession of cereal grasses, such as oats, wheat, barley, rye or sudan grass.

When the grass is young and tender and the bugs are plentiful, growing pullets need little more in the way of feed. They not only obtain a desirable amount of fine proteins, but also an abundance of essential vitamins. Many poultrymen who have lots of grass have not been taking advantage of their opportunity to grow sound, profitable pullets this simple, economical way.

A permanent grass range or sod is good until the first joint begins to form, then it starts to get tough and the vitamin and protein content decreases rapidly. During the hot summer months, there is not much food value in the grass. In the summer time there is usually higher food value in a succession of cereal grass ranges, provided you have enough rainfall to count on having the cereal grass available.

The vitamin and protein content of the young, tender grasses depends a good deal upon the kind and the quality of soil. On certain types of rich soil, the vitamin and protein content is materially higher than the same kind of grass grown on a poor soil.

Some poultrymen feel that unless they can change the range every year, they dare not put the pullets out on range. We can't agree with this viewpoint. Regardless of the condition of the range, we think it is better to get the birds outdoors on the ground, even though it is on bare ground. Many of the finest chickens have been raised on a range which was used year after year. The birds get something out of the contact with the earth.

But remember that pullets stuffed with feed do not take advantage of the grass range. It is only when you restrict the feed that they do a good job of eating the grass and bugs. And if the grass is closely cropped it is of value to the birds for a longer period.

Whether you are turning your pullets loose in January or in May, get them outdoors on the ground Provide them with whatever range you have available.

—From the booklet, "Make 1942 Your Best Year With Chicks." Copyright 1942, by the Quaker Oats Co.

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BRITISH men, worried about losing their hair, are taking tablets of sulphur to make up for a lack of that element in their diet because of the egg shortage, say newspaper reports. Nutrition authorities say that eggs are rich in sulphur, which is necessary for hair health.

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# Progeny Testing in an Eggshell

By MORLEY A. JULL
University of Maryland

*Condensed from American Poultry Journal*

As far as chickens are concerned, all life is perpetuated through the egg. Many poultry breeders think their major problem is to select high producing hens and mate them to sons of high producing hens. The more progressive poultry breeders select their breeding stock on the basis of the performance of families. Most poultry breeders fail to realize, however, that the crux of the matter lies in the combination of heritable qualities which the egg has received from the sire and the dam.

### Increased Production Needed

Since the poultry industry has been called upon to produce more eggs and poultry meat, it is most important that the poultry breeders of this country operate in high gear to meet the defense needs. An increase of 10 per cent in egg production for 1942 over 1941 has been called for. The Federal Government anticipates a production of at least 4 billion dozen eggs in 1942, as compared with an annual average of 3.4 billion dozen from 1936 to 1940.

Relatively, that is a big increase, most of which can be accomplished by increasing the number of layers kept and by better management. In the long run, however, most of the increase in egg production can be secured by developing bred-to-lay strains. That's the kind of stock poultrymen will need when the "boom" of the defense program is over and we shall settle down to the hard times that are bound to follow this latest world conflict. Efficiency of production will become of outstanding importance in the future.

### Better Stock Needed

To make good money out of egg production, most farmers and commercial poultrymen need better laying stocks. In 1940, the average egg production of the laying flocks of the country was about 101 eggs per bird. That's too low to make a good labor income, and much too low for profits. With prevailing feed prices, and in view of the fact that the cost of feed represents about 50 per cent of the total cost of producing eggs, it takes an average of at least 150 eggs per bird to make a good labor income. By 150 eggs per bird is meant the average number of eggs laid on the basis of the original number of birds housed — the hen-housed average.

American Poultry Journal, 536 So. Clark St., Chicago, Ill.
(American Poultry Journal, January, 1942)

Table 1 shows that the number of eggs a bird lays is not necessarily an index of her breeding worth. This is to be expected, because the sire to which a dam is mated influences the number of eggs the progeny of the pair will lay. For the most part, egg production is inherited equally from sire and dam. What the most progressive poultry breeders have learned is that the performance of the progeny depends upon the kind of sire and the kind of dam that are mated together.

Even when the same sire and dam are mated together two years in succession, the performance of the progeny one year may be quite different from the performance of the progeny the other year. This is shown by a study in which the daughters of the second year mating laid an average of 44 more eggs than the daughters of the first year mating. These results simply show that environment and other factors affect the number of eggs produced and that the dam's record of egg production is not a reliable index of her breeding worth.

## Judging Males by Daughters

In comparing the average egg production records of the daughters of two White Leghorn sires mated to hens that laid approximately the same number of eggs on the average during their first laying year, (285 and 283), we found that the daughters the 285 egg sire laid an average of 163 eggs, whereas th daughters of the 283-egg sire laid a average of 243 eggs. A difference o 80 eggs per bird between the pe formance of the two groups o progeny demonstrates that sire No 2 was obviously a much bette breeder than sire No. 1, assumin that the two groups of dams were o comparable breeding worth.

**TABLE 1 — Average Production o Daughters of Three White Leghorn Dams Mated to Different Sires.**

| Dam | Dam's First Yr. Record | Daughter Record |
|---|---|---|
| 1 | 280 | 137 |
| 2 | 280 | 167 |
| 3 | 280 | 220 |

## Progeny Testing Worth While

The same kind of informatio was uncovered by studying the progeny of two Rhode Island Red sires The daughters of one sire laid a average of 77 more eggs per bir than the daughters of another sire in spite of the fact that the hens t which the latter sire was mated lai an average of 270 eggs per bird whereas the hens to which th former sire was mated laid an ave age of 252 eggs per bird.

These examples demonstrate clea ly that progeny testing is very muc worth while. Cockerels and pullet for future breeding purposes shoul be selected from among the progen of the two sires whose offspring ga the best results. Furthermore, th performance of the progeny of eac female mated to these two outstanding sires should be examined carefully in order to determine which of the dams produced the best progeny.

Now let's take a look at Table 2, which gives the records of egg production of the daughters of each of four hens mated to a male whose dam laid 310 eggs during her first-laying year. It is clearly apparent that the best family of full sisters was that produced by the dam that laid 258 eggs during her first-laying year. The average egg production of the daughters of each of the 4 dams was: 219.7, 166.7, 187.2, and 181.8, respectively. Thus it is observed that the daughters of the 258-egg dam laid an average of 30 eggs per bird more than the daughters of the second best dam.

Cockerels and pullets for future breeding purposes should be selected from among the progeny of the dam that laid 258 eggs rather than from any of the other three dams. Among the daughters of the dam that laid 258 eggs, it is observed that one daughter laid only 190 eggs, but she would undoubtedly make a better breeder than any of the daughters of any of the other dams. It becomes clear why progeny testing is so important in developing high laying strains.

## Register of Merit Birds

One of the best pieces of evidence of the practical value of progeny testing is the average egg production of the daughters of U. S. Register of Merit males in the National Poultry Improvement Plan. Register of Merit males are those which by progeny testing have demonstrated relatively superiority over other males used in R.O.P. breeding work. During the 1939-40 trapnest record year, the hen-housed average egg production of 10,356 daughters of U.S. R.O.M. sires was 203 eggs. Dur-

**TABLE 2—Eggs Laid by the Daughters of Four Hens Mated to Same Male.**

Sire from
310-Egg Hen

| 258-Egg Hen | 262-Egg Hen | 262-Egg Hen | 265-Egg Hen |
|---|---|---|---|
| Daughters' First-Year Egg Production | | | |
| 190 | 95 | 116 | 131 |
| 210 | 105 | 150 | 164 |
| 212 | 157 | 164 | 168 |
| 216 | 161 | 181 | 222 |
| 234 | 190 | 201 | 224 |
| 234 | 196 | 211 | |
| 242 | 263 | 215 | |
| | | 218 | |
| | | 229 | |
| Avg. 219.7 | 166.7 | 187.2 | 181.8 |

ing the same period, the average egg production of 7,631 daughters of U.S. R.O.M. dams was 213 eggs. Also, during the same period, the average egg production of all laying hens in the United States was approximately 101 eggs. Clearly then, progeny testing is very much worth while.

### Other Things Besides Eggs

Up to the present time, we have discussed the merits of progeny testing for egg production only. The same principles apply in breeding for egg size and other characters, such as resistance to disease. Egg size and interior quality are important factors that should always be taken into consideration. Also, because of the relatively high losses that occur annually among laying flocks, the time has come when poultry breeders should give much more consideration to breeding for resistance to disease.

The poultry industry of the United States needs more better-bred stock. This is going to become more and more important. A 4-pound 100-egg hen uses, on the average, over 8 pounds of feed for every dozen eggs she lays, whereas a 4-pound 200-egg hen uses, on the average, about 5 pounds of feed for every dozen eggs she lays. Poultry breeders whose responsibility it is to develop efficient strains for farm and commercial flock owners should pay much less attention to records of egg production and much more attention to progeny testing.

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## *Locating Poultry Houses*

Poultry houses have almost always been faced to the south, but the Ohio Agricultural Experiment Station reports that many of the newer houses are being faced to the east. There have been observed some distinct advantages in facing the poultry house to the east instead of the south in northern sections where winters are rather severe.

During 10 months of the year, direct sunlight can enter the east front and penetrate to practically the entire interior, while direct sunlight can enter the south front only during the winter months when the health-giving properties of direct sunlight are less potent and the weather is such that windows are kept closed most of the time. Furthermore, the east front is generally less exposed to prevailing winds, rain, and snow. After seven years' experience, a 24- by 100-foot east front laying house at the station is preferred to houses with south fronts.

—G. E. F., Successful Farming, February, 1942.

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# Four Measures of Breeding Value

### By IRVING J. KAUDER

New Paltz, N. Y.

*Condensed from New Jersey Farm and Garden*

THERE are four measures of breeding value in poultry. While those measures are basically important in the selection of breeding stock for foundation or flock improvement purposes, they have great practical importance for every farmer or poultryman who raises poultry for either egg or broiler production. I have analyzed each method of recording breeding achievement in order to interpret it in terms of today's needs.

The four measures are:

1. The Breeding Program.
2. Egg Laying Contests.
3. The U.S.R.O.P. Report.
4. Hen-housed Flock Averages.

### The Breeding Program

The scope of a breeder's work can best be judged by a careful study of the number and kind of inherited qualities he is breeding for, the extent to which he progeny tests and uses progeny-tested males or families, the completeness and accuracy of his breeding records, and the number of pullets trapnested. Other points are the amount of old hen trapping, the number of pedigree pens, and the amount of breeding for livability, production, and egg size. By and large, the more a breeder does these things, the better chicks he is likely to produce. Advanced breeders analyze their individuals and families genetically for production and livability; but such analysis is only practical where large numbers of pullets and old hens are trapped. A major consideration for continuance of good results is a variety of families; the quality of males and females used in the matings from which chicks are sold is of first importance for the poultryman.

The breeding program, then, is the basis on which results are built. It is extremely important, but it is risky to evaluate chicks on this one measure.

### Egg Laying Contests

The only truly official measure of breeding achievement is the laying contest. At the contests, management is entirely impartial; feed and other conditions are very similar. To be sure, contests are subject to two criticisms—the records are on a small number of birds, and healthy pens are sometimes subjected to adverse conditions by contact with diseased birds. The latter criticism comes back to the breeders who send un-

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(New Jersey Farm and Garden, March, 1942)

healthy birds rather than to the contest management.

The best known contest records are those for high pens and high individual hens. The American Council of Egg Laying Tests now issues a summary report which lists all contest hens with records over 250 eggs, equaling at least 250 points. Each year competing breeders hope to break existing world records for high pen or high hen in each breed, and for all breeds. Each year, also, some pen or hen achieves high score for its breed (or class) at each contest. These pen and hen records can be considered "junior" records—important, but not decisive in setting the value of any chicks.

### Other Considerations

In recent years, there has been increasing emphasis on the importance of contest records on a larger number of birds, and on consistent contest performance over several years. The New Jersey contests have been pioneers in publishing the highest records for livability, production, etc., over five-year periods at each pullet contest and at the hen contest. These are still the only contests which publish these more valuable facts.

There are, then, three classes of contest records. First are the "junior" records for pens and hens; there can be scores of these each year. Each represents achievement, provided they aren't "flashes in the pan." Second are the standings for five or more pens, and third are those over a period of years. It takes consistent breeding to maintain high scores in contests over several years, especially on a fairly large number of birds. It is certainly easier to evaluate the stock back of chicks on the basis of contest records, especially when these distinctions are kept in mind.

### The R.O.P. Report

The R.O.P. report which is published each year by Hatchery Tribune, dealer magazine of the hatching industry, is the only national public record of the results secured under the R.O.P. program. It is a distinct, though very complicated, measure of a strain's performance. Chief valid criticism of the report, of course, is the fact that the records are only on those birds which qualify for U.S.R.O.P. or those which lay 200 or more 24-ounce eggs. The report gives a far from complete picture of productive ability, and gives no idea of the livability of the birds being trapnested. Contest records, on the other hand, do tell the whole story of the production of all thirteen birds entered. This criticism of the R.O.P. report must go back to fundamental weaknesses in the whole R.O.P. program, which are, however, being corrected as fast as progress allows.

The most important facts in the report are the size of the trapnest flock, percentage of the whole flock trapped, percentage qualified, and average production and egg size. When these facts are correlated, you can get a fair picture of the performance of the flock, though a study of the R.O.P. reports over several years is still more valuable.

These are a few of the points to look for in records of R.O.P. work. Of the four measures of breeding value, this is at present the weakest. On the other hand, the figures are at least semi-official, and the movement is an attempt at industry cooperation in breeding terminology.

### The Hen-housed Flock Average

The newest and probably the soundest record on any breeding flock is the hen-housed flock average. In two or three states, these are published by the breeders under R.O.P. supervision; there are also a handful of breeders outside R.O.P. who publish the hen-housed flock average on part or all of their pullet flock.

Here is a record that is more difficult to achieve than any other, and one that is far more valuable than any other. I don't believe there are over a dozen breeders in the whole country who publish hen-housed averages of any kind. Yet many nationally known poultry authorities have stated that this is the soundest measure of breeding achievement; the safest one by which to judge chick value. Of course, the reason for its omission is the fact that a high hen-housed flock average in a breeding flock requires (1) extremely high family production, (2) low mortality, and (3) very few culls of any kind. The true hen-housed flock average is simple. Suppose 100 birds are housed. If they lay 20,000 eggs, they average 200 eggs per bird; if they lay 10,000 eggs, they average 100 eggs per bird on a hen-housed basis. This is the only record that matters for the poultryman, for it is the one that means all the difference between profit and loss to him.

There are several types of hen-housed averages and flock figures of this type. They include livability of chicks to 10 weeks and to maturity; flock records on pullets for livability, production, egg size, and body size; and records of flock reduction, which means the total number of birds removed for mortality plus culls. The hen-housed flock average summarizes the flock performance for production, livability, and number of culls. A high hen-housed average means high production, high livability, and few culls; a low hen-housed average means unprofitable flock performance in one or more of these respects.

### Four Yardsticks

Here are the four yardsticks. They are important chiefly to the poultrymen and farmers who buy chicks. But they are also important to the breeder and hatcheryman; for the breeder needs to be able to compare his stock with existing standards of accomplishment in order to know whether he is going ahead or not. Roughly, the breeder should ask himself, and the chick buyer should learn, whether his stock measures up with the best in these four respects —breeding program, contests, R.O.P. qualified averages, and hen-housed flock averages. One other consideration is important, of course, though it is not a matter of breeding. That is pullorum control. Pullorum clean chicks are best, though they should never be raised or housed with untested stock. Applying these yardsticks before buying chicks (and before planning to sell chicks) can help both the poultryman and prospective breeder.

## *Blackouts and Insulation*

The above heading suggests two unrelated subjects. Ordinarily, they are, but during the month of December they were related on many poultry farms in as much as the observance of the first and the neglect of the second brought about sharp drops in egg production.

It was no joke having to blackout lights on poultry farms. Electric light in egg producing centers is taken as much for granted as water and dry mash. Poultrymen strove to hang up tar paper, heavy sacks, anything that would keep that hateful light from reflecting on the ground in front of the houses. Some, too zealous, covered their windows, and incidently their only source of ventilation, and left the coverings on all night to take care of "morning lights." The blackout, in these cases, was perfect, but mass colds resulted, with consequent heavy slumps in production.

No sooner had blackout regulations been lifted than the weather man brought in winter; real winter. The skating was grand, but the open-fronted, high roofed laying houses made excellent refrigerators, and pullets do not respond well to refrigeration. Frozen water, frozen combs, frozen attendants, every blessed thing frozen, including water pipes. "Gosh darn it," we said, "next year we will insulate these buildings."

That's how blackouts and insulation became related subjects.

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# Diary of a Poultryman

### By PERCY S. WHITE

Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**March 1** — I would say offhand that March has come in like a lamb. This has been one of the balmiest days that we have had in quite some time. All of this so-called laying stock that I have been feeding all winter seems to be taking on new life.

Production picked up in all pens today, with the exception of the second floor in the barn. These birds haven't been doing as they should for several weeks. I hope, however, that they will take a new interest in life and produce some good hatching eggs. Walter Buss reports that my hatchability has been down recently, due, no doubt, to the cold weather a short time ago. The auction volume shows that production has been off, too.

**March 3** — I am not doing much work this afternoon, in fact, I am not doing anything but just resting. The second of the spring poultry schools will be held tonight, and my job is to lead the meeting. I am supposed to present the written questions from the audience to the question and answer panel.

**March 5**—Kid White is laid out with a cold that is a real one; the Old Man can hardly wiggle either. The work in the house has slowed down to such an extent that it is hardly noticeable. Nancy Jane and I clean the eggs as soon as she gets home from school. Dr. Cutright was out and left an envelope full of pills. We should feel better in the sweet by and by.

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Apparently, they don't have time to go in the nests and lay like well-regulated families should. But I am just glad enough to get the eggs, regardless of where they are laid. I have never seen the time yet when I was so high and aloof that I wouldn't stoop to pick up an egg on the floor.

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**March 22**–Another one of those real spring days, and all laying house windows were opened to let the glorious sunshine in, also plenty of fresh air. The floors are a wee bit damp, but a few days like yesterday and today will do wonders for them.

I believe that most of the birds spent the greater part of the day dusting. This is not only good for the birds, but still better for the litter, as dusting has a tendency to pulverize it. Strange as it seems, birds prefer to have their dust bath slightly damp. There is plenty of damp dusting material on the floors, so the harder they dust, the better for all concerned. At least, when they are dusting, they are not concocting some foul idea for getting into mischief.

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**March 27**—This has been a hectic day, without a doubt. The first job this morning was to scatter a trailer load of manure while the field was frozen. Truck and trailer were gotten out of the field just in time to prevent miring. A truck load of feed from town took time to unload, plus time to gossip with Roy Fouch, the driver. Then it was time for egg gathering.

**March 28**—Three float valves gave trouble early this morning. Little particles of corruption got under the valve seat and let a continual stream of water flow all the time. Fixing the floats was a simple job. All that had to be done was to unscrew the float and remove the foreign particles.

**March 31**—I wondered what was the matter with me, why I couldn't candle and pack eggs rapidly. Finally it dawned on me as to the cause. The radio wasn't going. I guess I am like the younger generation in that I have to be jazzed up in order to work. All this jazzing up of the wave lengths today hasn't affected my egg room radio one iota. I can get two and sometimes three programs at the same time without half trying. But I believe I candle eggs best to the singing of a coloratura soprano. By the time she hits the high note, I am candling eggs with the rapidity of the mounting national debt. And that is candling eggs for an all time high in any man's country.

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## *Copper Sulphate for Turkeys*

Different sections of the country have developed varied methods of keeping birds healthy. In some of the mountain states, even where mycosis has caused severe losses, one never hears of the use of bluestone or copper sulphate in the drinking water. In other areas, good growers would not attempt to raise turkeys without it and keep it constantly in the drinking water.

Too many growers have found this preventative, or remedy (whichever you may choose to call it) useful to dismiss it as a figment of the imagination. It has a place in turkey growing in some regions, both with the young stock and with the old.

Some growers put their breeders on bluestone for two or three days every two weeks and at the same time put either the stock solution or bluestone crystals in the pot holes and seeps that may be in the breeding yards.

The common formula for the use of bluestone is to dissolve a pound of copper sulphate in a gallon of water, then use one tablespoon of the stock solution to the gallon of drinking water.

—Norbest Turkey News, February, 1942.

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# VIEWS OF THE EDITORS

### Price Policy

The Government's policy on prices has rapidly taken form. The Price Control bill held out hopes of higher prices, since they could rise to certain levels before restrictive measures became effective. The Administration in Washington, however, has emphatically taken the position that food prices should be kept at reasonable levels, and production stimulated by keeping feed costs in line, so that the production of meat, milk, and eggs may not be hampered by excessive feed costs.

Feeders have already felt the impact of advancing costs, as corn and wheat, which sold well below parity over a period of years, advance into what the grain grower considers a more reasonable alignment. Eggs, this month and next, are in their seasonal soft period, but eggs sold to advantage throughout the winter, and Government will continue to be a heavy buyer of this commodity. Government is fully aware of the importance of eggs for civilian consumption, for transshipment to England, and for our own far flung army, which will be up to four million men by December. Indeed, it has been said that England would not now be able to make war if it had not been for the vital supplies furnished by American agriculture, in which dried eggs have played a valued role. Our commitment in regard to feeding Britain is a continuing responsibility, and volume of food products to go out under Lease-Lend will be greater in 1942 than last year.

—Frank L. Platt, American Poultry Journal, February, 1942.

### Broiler Chick Agreement?

Despite frequent warnings last year by officials in the Surplus Marketing Administration that broiler growers would soon be faced with a surplus, an increasing quantity of chicks kept moving into the Del-Mar-Va area, new houses went up, and there seemed to be no end to the expansion. When rising feed costs caught up with declining broiler prices, there was a flurry of cancellations of chick orders, thousands of chicks accumulated in hatcheries, and many poultrymen who were specializing in producing hatching eggs for broiler chicks lost their market almost overnight.

Some of the thinking as to a solution for this problem leans in the direction of a marketing agreement, supervised by the government, to limit the volume of chicks going into the Del-Mar-Va area.

On the surface, this may seem like a good way to solve the problem, but successful restriction of chick shipments in this one area would only widen the opportunities for growing broilers in other sections of the country. Soon it would have to extend to all producers of broiler chicks, and eventually all chick hatcheries in the country would have to be subjected to these restrictions.

Most of the troubles in the Del-Mar-Va section are due to easy credit. It is easy to cancel a big chick order when no down payment has been made. It is easy to lay in feed week after week because the feed man has agreed not to collect his money until the broilers are sold. When you ask the hatcheryman or the feed man why he follows this practice, he'll tell you he doesn't like it, but he has to do it because his competitor does.

Rather than invite government "crop control" into chick production, it seems that hatcherymen and feed men should get together and tighten up on credit practices. It may mean reduced volume, but it will be profitable business. The fellows who won't ride along will get burned financially sooner or later.

—Everybodys Poultry Magazine, March, 1942.

## Expanding Field for Conservation

Frequently, inquiries pertaining to poultry evisceration by-products are received. Some want to know where edible rendered poultry fats may be obtained. Others want information in regard to recovering useful products from poultry evisceration wastes. The sale of eviscerated poultry has increased materially during the recent years, and especially in the past 12 months under the governmental buying for our armed forces. With further extension of evisceration in regular consuming channels and great expansion in our Army and Navy bringing about the need for more dressed poultry to feed the men, a still greater demand for eviscerated poultry may be expected. Such poultry presents economy in storage, transportation and handling with the added advantage of easier cooking in the Army field kitchens and aboard ship. And further growth in eviscerating automatically increases the volume of poultry wastes — the entrails, heads and feet.

Unthought of by many in the poultry industry, there is an economic value to these heretofore-called wastes. In one branch of research in this field, G. F. Stewart of Iowa State College and F. E. Musseh1 of the University of Nebraska, from their investigations have determined that from the offal of heavy hens (entrails, heads, feet) as much as 20.3 per cent of the total fat may be obtained by a process employing 15 pounds of steam for five hours. This method unquestionably would not be suitable for the recovery of edible poultry fats. However, by hand-selecting internal fat tissue from heavy hens, a profitable percentage of edible fat might be rendered.

Stewart and Mussehl found that the wastes from broilers yielded 1.7 per cent pressable fat and 22.7 per cent meat scrap; roasters, 4.0 per cent pressable fat and 28.0 per cent meat scrap; light hens, 4.0 per cent pressable fat and 21.7 per cent meat scrap; and heavy hens, 6.5 per cent pressable fat and 21.7 meat scrap.

Since all indications now point toward a substantial increase in the poultry eviscerating business, dressers will doubtless be interested in experimenting further on a commercial scale with various methods of recovering profitable by-products from evisceration wastes.

—American Egg & Poultry Review, February, 1942.

## Are You Eating Eggs?

When the poultry industry was asked to produce enough eggs to feed our armed forces, our citizens, and our allies, it was given a grave responsibility and a high compliment at the same time.

The responsibility is centered around seeing to it that American hens lay the record volume of 50 billion eggs this year. The compliment involves recognition by the government that the industry's product is one of the most nutritive as well as highly protective foods known to man.

It is every citizen's duty to keep himself at the peak of health these days, so that he will be able to put forth his maximum effort at whatever he may be doing, and be ready to meet any emergency. If eggs are good enough to build up and protect the health of Uncle Sam's soldiers, they are good enough to do the same for you. Are you eating as many as you should?

—Poultry Supply Dealer, March, 1942.

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PREVENTION of poultry diseases rests upon the elimination of the causative organisms or parasites from the premises or developing resistance to submarginal infections. Resistance of the flock may be increased temporarily by vaccination and proper nutrition and more permanently by breeding and selection. Breaking the cycle of infection by proper management and sanitation is always a desirable and practical procedure.

—1942 Indiana Poultry Blue Book.

FINES totalling more than $20,000 were imposed upon United Kosher Poulterers, Ltd., by the Thames Police Court magistrate in a case in which he calculated that excessive wholesale prices had been charged on "something like 50,000 fowls."

—Modern Poultry Keeping, London, England, Jan. 21, 1942.

# More Turkey Poults Expected this Year

TURKEY producers intend to buy or hatch about 8 per cent more poults for raising than last year, according to February 1 reports to the U. S. Department of Agriculture from over 5,000 growers, who had about 2½ million poults for raising last year.

The number of turkey breeding hens on hand February 1 was only 5 per cent more than a year ago, and the somewhat larger intended increase of 8 per cent in poults suggests a shortage of eggs for early hatching in March and April, just as in 1941. Producers plan to increase their purchases and their home hatch in about the same proportion.

This report relates to poults intended for raising, and does not necessarily indicate the number of turkeys that will actually be raised this year. Some difference between intentions and actual performance is to be expected, the difference depending on the price of feed, the supply and price of hatchery eggs, and poult prices during the hatching season. In former years, the intention of turkey producers to buy and hatch poults has slightly exceeded their actual performance. In 1938, intentions exceeded performance by 3 per cent, in 1939 by 2 per cent, in 1940 by 4 per cent, but in 1941, 1 per cent more poults were produced than were intended on February 1 of that year.

Unless hatching begins earlier this year than last and continues late, the supply of eggs may be insufficient to produce the intended 8 per cent larger number of turkey poults.

Turkey growers in the West North Central States, who produced about 35 per cent of the turkeys raised in 1941, report an intended increase of 8 per cent in poults this year. In the Western States, which produced 26 per cent of the 1941 crop, the expected increase is 7 per cent, in the South Central States 9 per cent, in the East North Central 6 per cent, and in the North Atlantic 7 per cent. The largest expected increase is 16 per cent in the South Atlantic States, which produced only 6.5 per cent of the 1941 crop.

TABLE 1—Turkey Hens on Hand and Intended Production of Poults in 1942

| Geographic Division | Proportion of all turkeys raised in 1941 | Number of flocks reported | Number of eggs laid per hen during 1941 on hand Feb. 1, 1941 | Numbers in 1942 as a per cent of numbers in 1941 | |
|---|---|---|---|---|---|
| | | | | Turkey hens on hand | Poults for raising |
| | Per cent | Number | Number | Per cent | Per cent |
| North Atlantic | 6.2 | 524 | 31 | 112 | 107 |
| East No. Central | 8.1 | 540 | 29 | 99 | 106 |
| West No. Central | 35.4 | 1,556 | 27 | 106 | 108 |
| South Atlantic | 6.5 | 688 | 25 | 108 | 116 |
| South Central | 17.6 | 781 | 21 | 93 | 109 |
| Western | 26.2 | 1,180 | 34 | 124 | 107 |
| United States | 100.0 | 5,269 | 31.4 | 105 | 108 |

TABLE 2—Proportion of Turkey Crop Marketed Each Month

| Geographic Division | Per cent of total | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
| No. Atl. | 1.9 | 1.7 | 1.0 | 0.7 | 0.6 | 0.7 | 0.7 | 1.1 | 2.6 | 6.0 | 42.2 | 40.8 |
| E. No. Cent. | 1.8 | 0.8 | 0.3 | 0.3 | 0.8 | 1.9 | 0.6 | 1.4 | 5.3 | 6.5 | 40.3 | 40.0 |
| W. No. Cent. | 1.0 | 0.3 | 0.1 | 0.1 | 1.6 | 1.6 | 0.1 | 0.2 | 3.8 | 8.1 | 45.1 | 38.0 |
| So. Atl. | 1.7 | 0.7 | 0.2 | 0.5 | 0.4 | 2.1 | 0.0 | 0.4 | 0.8 | 8.6 | 44.4 | 40.2 |
| So. Cent. | 0.9 | 0.3 | 0.1 | 0.4 | 0.5 | 0.4 | 0.7 | 0.1 | 0.2 | 1.2 | 54.4 | 40.8 |
| Western | 6.2 | 1.3 | 0.1 | 0.9 | 3.2 | 3.2 | 0.3 | 0.9 | 2.3 | 5.9 | 35.1 | 40.6 |
| United States | 2.5 | 0.7 | 0.2 | 0.4 | 1.6 | 1.8 | 0.3 | 0.5 | 2.6 | 6.1 | 43.5 | 39.8 |

### Hens Increase This Year

The largest increase in breeder hens is 24 per cent, in the Western States, where farmers specialize in the production of turkey eggs for hatching and the egg production per hen is the largest in the United States. All sections of the country show increase in breeding hens except the South Central and East North Central States, which show decreases of 7 and 1 per cent respectively. About 22 per cent of the breeder hens are located in the Western States and 33 per cent in the West North Central States.

### Marketing of Turkeys in 1941

Of the turkeys marketed in 1941, about 44 per cent were sold in November, 40 per cent in December, 6 per cent in October, 3 per cent each in September and January, 2 per cent each in May and June and a fraction of 1 per cent in each of the remaining months.

### Weight Per Bird Increases

The average weight per bird sold alive in 1941 was 15.9 pounds, which is the heaviest of record, 5 per cent heavier than in 1940. The average weight of turkeys sold has increased gradually since 1930 due mainly to breeders' efforts to increase size of birds. The breeders of bronze turkeys were especially successful in developing the mammoth bronze. The heaviest birds are found on the Pacific Coast, where the mammoth bronze turkey is found in greatest numbers.

The average turkey hen sold in

TABLE 3—Average Weight Per Turkey When Sold in 1941

| Geographic Division | Hens | | Toms | | All | |
|---|---|---|---|---|---|---|
| | Alive | Dressed | Alive | Dressed | Alive | Dressed |
| | Pounds | | | | | |
| North Atlantic | 12.9 | 11.5 | 19.1 | 17.1 | 16.0 | 14.3 |
| East North Central | 12.6 | 11.3 | 18.2 | 16.3 | 15.4 | 13.8 |
| West North Central | 12.3 | 11.2 | 18.5 | 16.6 | 15.4 | 13.9 |
| South Atlantic | 12.4 | 11.1 | 17.8 | 15.9 | 15.1 | 13.5 |
| South Central | 12.5 | 11.2 | 17.7 | 15.8 | 15.1 | 13.5 |
| Western | 13.5 | 12.1 | 21.3 | 19.3 | 17.4 | 15.7 |
| United States | 12.7 | 11.5 | 19.1 | 17.1 | 15.9 | 14.3 |

the United States in 1941 weighed 12.7 pounds alive and 11.5 pounds dressed, and the average tom weighed 19.1 pounds alive and 17.1 pounds dressed.

### Larger Death Losses

Loss of turkey poults in 1941 was 7 per cent larger than in 1940 and the largest in the last 5 years. A cold wet spring in the South Central States and unfavorable weather in the Western States during the spring resulted in the highest poult mortality during the last 5 years. In the North Atlantic, West North Central, and South Atlantic States the loss was less than in 1940, while in other areas it was larger. The loss of mature birds during 1941, although 7 per cent larger than the small loss in 1940, was lower than in other years since 1937. The greatest losses of mature birds were in the Western States, where losses greatly exceeded the previous 4 years. In all other areas the loss of mature birds was either the same as in 1940 or the lowest of record.

—U. S. D. A. News Release.

TABLE 4—Death Loss of Turkeys

| Geographic Division | Young turkeys lost as a per cent of total numbers bought and home hatched | | | | | Breeding stock lost as a per cent of February 1 numbers of breeders | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1937 | 1938 | 1939 | 1940 | 1941 | 1937 | 1938 | 1939 | 1940 | 1941 |
| | Per cent | | | | | Per cent | | | | |
| No. Atl. | 19 | 16 | 17 | 19 | 17 | 11 | 11 | 10 | 9 | 7 |
| E. No. Cent. | 22 | 21 | 20 | 19 | 21 | 11 | 12 | 10 | 10 | 10 |
| W. No. Cent. | 24 | 23 | 23 | 29 | 24 | 11 | 12 | 10 | 10 | 10 |
| So. Atl. | 32 | 31 | 35 | 28 | 27 | 12 | 13 | 12 | 11 | 10 |
| So. Cent. | 36 | 38 | 38 | 31 | 45 | 18 | 14 | 17 | 13 | 13 |
| Western | 21 | 20 | 19 | 20 | 22 | 5 | 6 | 5 | 5 | 8 |
| United States | 27.0 | 26.3 | 26.0 | 25.9 | 27.8 | 11.8 | 10.9 | 10.4 | 9.4 | 10.1 |

## Adding Vitamins to Eggs

Eggs from properly-fed hens are more valuable than eggs from a flock that has not received a balanced ration, declares H. L. Wilcke of Iowa State College.

He points out that by changing the ration the vitamin A content of an egg can be increased three to four-fold. In practical type rations, 11 to 32 per cent of the vitamin A in the ration is deposited in the yolk. Vitamin D is transferred to the egg from the feed even more readily than vitamin A. By feeding massive doses of vitamin D, the vitamin D content of eggs was increased 600 times, resulting in yolks that were definitely a vitamin D concentrate.

—American Poultry Journal, March, 1942.

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# WAR AND THE POULTRY RAISER

EDITOR'S NOTE: This department will be a regular feature of the Poultry Digest throughout the duration of the war. It will be a running review of governmental actions and war developments that directly affect poultry raisers.

### Government Continues Buying of Eggs on Exchanges

The U. S. Department of Agriculture announced February 28 that the purchase of eggs will continue on the New York and Chicago Mercantile Exchanges, but without the advance announcement of "floor" prices.

The purchase of eggs on these exchanges by the Agricultural Marketing Administration is one of the several methods being employed by the Department of Agriculture to assure the farmer of not less than 85 per cent of parity. These purchases supplement other phases of the purchase program being conducted by the AMA to support prices to producers. Other phases of the program are the extensive buying of dried egg products for Lend-Lease, purchases soon to be made of U. S. Wholesale grades of shell eggs for school lunch and relief distribution programs, and the placing of eggs on the list of foods available under the Stamp Program.

Department officials point out that on February 15 the average farm price for eggs was 99 per cent of parity for that date. While the present level of egg prices obviates the necessity at this time of announcing for a period in advance the prices which AMA will pay for eggs purchased on the exchanges, officials stated that the Department is prepared, as in the past, to make immediate purchases to prevent declines out of proportion to the normal seasonal changes at this season of the year.

If market conditions warrant during the current period of heavy production, it is probable the Department will again announce floor prices for limited periods as was done for the February 10 to 28 period.

—News release from U. S. Department of Agriculture.

### Southern Egg Buying

A plan to provide egg producers in Southern States with a supported market to assist in meeting special egg marketing problems which arise in that section of the country during the spring months of flush production was announced February 23 by the U. S. Department of Agriculture.

Basically, the plan proposes to

make use of public refrigerated warehouses in the South as stations for the purchase of eggs, at announced prices, in lots of 10 cases or more. The eggs would be bought for the Surplus Marketing Administration for domestic distribution to public aid families, for free school lunches, Lend-Lease and Red Cross shipment, or for market stabilization reserves.

Under the program, public warehouses will buy the eggs from vendors at announced prices, based on at least 85 per cent of parity for each State, on designated days each week. Federal-State inspectors will be available at the warehouses on these days and after grading, the eggs will be assembled and stored by the warehouses for distribution as designated by the SMA.

Farmers, cooperative organizations, small dealers, and storekeepers can assemble the eggs in lots of at least 10 cases and dispose of them at the designated warehouses at specified prices for specified grades.

Public warehouses in Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Alabama, Mississippi, Arkansas, Louisiana, and Florida are being asked by the SMA to submit offers for their services in buying, assembling, distributing as directed, or storing the eggs.

The program is the initial step in the development of a feasible marketing program following the discussion of the South's marketing problems at the Southern Marketing Conference held in Washington in January.

—News release from the U. S. Department of Agriculture.

## The Bag Situation

Although the War Production Board has been releasing some burlap bags for feed manufacturers, supplies are by no means plentiful. Poultry raisers should use every precaution to see that feed bags are in no way damaged in opening or when being held for sale to the feed manufacturers.

When the government took over the burlap stocks coming into this country and placed orders for all the cotton fabrics that could be produced, one grit manufacturer, who was caught short on his bag supply, had to send his salesmen around to buy up used bags so that he could make shipments.

The War Production Board is planning to buy 200 million yards of osnaburg, a coarse cotton fabric, to be used for food bags, packaging, sand bags, and camouflage. When the supply is built up, it should relieve the bag situation.

—Everybodys Poultry Magazine, March, 1942.

## Tires for Poultrymen

In a letter to the National Poultry Defense Committee on January 31, the Office of Price Administration declared, "Trucks used on farms, and this would include the commercial poultry farm, are eligible vehicles for new tires, provided they are used for usual farm purposes and are not employed in retail delivery of a house to house nature. Likewise, trucks used by commercial hatcheries and by cooperative marketing agencies should also come under the eligible classification, so long as they are not employed in retail delivery."

Trucks used exclusively for the purpose of transporting feed and grain to farms have also been made eligible for tires.

—Everybodys Poultry Magazine, March, 1942.

## Duck and Goose Feather Restrictions

The War Production Board on February 24 issued an order (M102) that duck and goose feathers, needed by the military services for sleeping bags, may be sold only to dealers, the Defense Supplies Corporation, or manufacturers, to be used only in filling defense orders with a rating of A-1-j or better.

## Vitamin A Restrictions

The War Production Board on February 10 restricted the use of vitamin A fish oils in poultry and livestock. Outbreak of war had shut off importations of oil from Japan and also resulted in the curtailment of fishing activities on both coasts. Large quantities of these concentrates are being supplied to England.

Instead of basing the restrictions on a certain percentage of vitamin A oil used previously, the order limits the use to 1,000 vitamin units per pound of feed. It does not take into consideration the fact that the requirements for turkeys are a great deal higher than those of chickens.

The U. S. Department of Agriculture, however, in a release issued March 3, maintains that half of the commercial feeds on the market contain at least 50 per cent more vitamin A than the minimum required for good nutrition. It points out that alfalfa leaf meal, aside from yellow corn, is the chief farm-grown source of vitamin A, but that there is probably not enough alfalfa leaf meal to take care of present feed requirements until this year's crop is harvested.

Commercial poultrymen on both coasts are likely to feel these restrictions more than farm flock owners, for they have catered to the public demand for light yolked eggs, something that is not possible when alfalfa leaf meal and yellow corn are the main sources of vitamin A.

## Egg Case Price Ceiling

A temporary price regulation, establishing maximum prices for used egg cases at prices prevailing from February 17 to 21, 1942, was issued by the Office of Price Administration on February 23. Maximum prices set under the emergency schedule follow:

| | Eastern Area Price per case | Mid-Continent Area Price per case |
|---|---|---|
| No. 1 | 22¢ | 26¢ |
| No. 2 | 17¢ | 21¢ |
| No. 3 | 12¢ | 16¢ |

The eastern area includes Maine, Vermont, New Hampshire, Rhode Island, Connecticut, Massachusetts, New York, New Jersey, Pennsylvania, Virginia, West Virginia, Maryland, Delaware, North Carolina, South Carolina, Georgia, Florida, and the District of Columbia.

The Mid-continent area embraces Ohio, Indiana, Michigan, Illinois, Wisconsin, Tennessee, Kentucky, Alabama, Mississippi, Louisiana, Texas, Oklahoma, Arkansas, Missouri, Iowa, Minnesota, North Dakota, South Dakota, Nebraska, and Kansas.

Some revisions in the order are expected in order to permit reconditioning of cases at cooperatives and at other country points and come within the ceiling prices which have been set. OPA has promised that it will look into reports that some dealers are attempting to get No. 1 prices for all qualities of cases.

## Poultry Equipment

A survey of leading poultry equipment manufacturers indicates that many items of poultry equipment will no longer be made after a few months until more materials are allotted by the government. Poultry raisers can do a lot to help the situation by making repairs to all old equipment wherever possible.

Production quotas set up on poultry equipment for the year ending October 31, 1942, are based on 1940 production, which was considerably under that of 1941. Actually, many of the manufacturers will be producing not much more than half of what they turned out in 1941.

Limitation order L-26 provides for the following quotas, based on 1940 production: oil brooders, 100 per cent; coal brooders, 100 per cent; gas brooders, 86 per cent; electric brooders, 115 per cent; growing batteries, 75 per cent; laying batteries, 25 per cent; poultry feeders, 70 per cent; waterers, 90 per cent; attachments and repair parts for poultry equipment, 160 per cent.

Some manufacturers have already reached the production quotas allotted to them on certain items, while others expect to have reached this point in another 60 to 90 days.

Many changes in materials and designs have had to be made. Inability to obtain galvanized sheet steel and iron has resulted in the use of painted black metal for feeders, brooder canopies, and other places where it can be used. One manufacturer had to re-design his electric brooder because he could not obtain the heavy insulation material which he had been using. Brass and copper parts will have been eliminated entirely from poultry equipment after present inventories have been used.

—Everybodys Poultry Magazine, March, 1942.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

**Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month**

| Geographic Division | Layers per flock | | | Eggs per 100 layers | | | Eggs per flock | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dec. 1 1941 | Jan. 1 1942 | Feb. 1 1942 | Dec. 1 1941 | Jan. 1 1942 | Feb. 1 1942 | Dec. 1 1941 | Jan. 1 1942 | Feb. 1 1942 |
| North Atl. | | | | | | | | | |
| 1931-40 (Av.) | 93.9 | 97.4 | 95.4 | 22.8 | 28.0 | 34.6 | 21.4 | 27.3 | 32.9 |
| 1941 | 92.4 | 95.4 | 94.5 | 30.1 | 37.7 | 41.2 | 27.6 | 36.1 | 38.9 |
| 1942 | 96.6 | 99.6 | 97.7 | 32.3 | 37.6 | 40.9 | 31.2 | 37.5 | 39.9 |
| E. N. Cent. | | | | | | | | | |
| 1931-40 (Av.) | 103.6 | 108.8 | 107.8 | 17.2 | 21.4 | 28.0 | 18.1 | 23.5 | 30.5 |
| 1941 | 106.9 | 110.3 | 108.5 | 23.6 | 30.3 | 35.7 | 25.6 | 33.9 | 39.0 |
| 1942 | 111.2 | 116.0 | 114.4 | 25.4 | 32.4 | 36.2 | 28.8 | 38.0 | 41.7 |
| W. N. Cent. | | | | | | | | | |
| 1931-40 (Av.) | 108.6 | 116.4 | 115.8 | 12.3 | 16.3 | 22.4 | 13.6 | 19.1 | 26.3 |
| 1941 | 109.9 | 116.1 | 114.7 | 13.8 | 22.0 | 29.9 | 15.4 | 25.7 | 34.6 |
| 1942 | 117.2 | 127.3 | 128.6 | 17.8 | 26.3 | 34.7 | 21.1 | 33.7 | 44.7 |
| South Atl. | | | | | | | | | |
| 1931-40 (Av.) | 55.4 | 58.6 | 57.2 | 19.5 | 22.1 | 29.5 | 10.8 | 12.9 | 16.9 |
| 1941 | 57.0 | 59.4 | 58.0 | 24.1 | 28.7 | 34.4 | 13.9 | 16.9 | 19.9 |
| 1942 | 59.3 | 62.2 | 62.3 | 24.5 | 28.8 | 34.4 | 14.6 | 18.0 | 21.4 |
| South Cent. | | | | | | | | | |
| 1931-40 (Av.) | 60.1 | 63.7 | 63.1 | 16.6 | 18.8 | 26.6 | 10.2 | 12.1 | 16.9 |
| 1941 | 59.2 | 62.7 | 61.8 | 19.0 | 22.6 | 33.4 | 11.4 | 14.4 | 20.8 |
| 1942 | 66.2 | 70.5 | 69.2 | 18.4 | 24.4 | 33.4 | 12.3 | 17.4 | 23.2 |
| Western | | | | | | | | | |
| 1931-40 (Av.) | 70.9 | 73.0 | 72.3 | 20.0 | 24.4 | 31.7 | 13.6 | 17.2 | 22.3 |
| 1941 | 68.7 | 71.6 | 69.1 | 22.4 | 27.6 | 36.0 | 14.4 | 19.3 | 24.5 |
| 1942 | 71.1 | 73.6 | 73.4 | 24.2 | 29.7 | 36.4 | 16.4 | 21.3 | 26.3 |
| United States | | | | | | | | | |
| 1931-40 (Av.) | 79.0 | 83.5 | 82.6 | 16.7 | 20.3 | 27.2 | 13.3 | 17.0 | 22.5 |
| 1941 | 79.4 | 83.2 | 81.9 | 20.2 | 26.6 | 33.9 | 16.3 | 22.1 | 27.9 |
| 1942 | 84.7 | 89.8 | 89.2 | 22.2 | 28.9 | 35.5 | 18.8 | 25.7 | 31.5 |

Egg production in January was a record for the month both in the rate of lay per bird and in total egg production. Total output was 17 per cent larger than the record production of January 1941 and 52 per cent larger than the 10-year (1931-40) January average. Unusually warm weather in the North Central States during January was responsible for a large part of the increase, egg production reaching record levels in January in all parts of the country, except the West.

The rate of lay in January set new record highs in all parts of the country except in the North Atlantic States, where the decrease was less than 1 per cent. For the country as a whole, the rate of lay was 5 per cent higher than the record of last January and 36 per cent above the 10-year average. The heavy rate of lay has continued into February, with the daily rate shown by sample farm flocks on February 1 being 5 per cent above the previous record high of February 1 last year.

Farm flocks in January averaged 367,650,000 layers, the largest number since 1928. The record number in January 1928 exceeded present numbers by only 2 per cent. Layers in January exceeded those of January last year by 11 per cent and the 10-year average by 12 per cent.

Compared with a year earlier, increases were 16 per cent in the West North Central, 15 per cent in the South Central, 10 per cent in the South Atlantic, 7 per cent in the East North Central and 6 per cent in the North Atlantic and Western States. The 10-year average January number of layers was exceeded in all parts of the country.

The average number of pullets not yet of laying age reported in sample farm flocks on February 1 was 8.8 birds, which is 1.1 birds or 14 per cent above the number a year ago and 0.4 of a bird above the 1940 February number.

These potential layers exceeded those of last year in all parts of the country. The increases were 22 per cent in the South Central, 21 per cent in the West, 19 per cent in the South Atlantic, 7 per cent in the East North Central and 4 per cent in the West North Central States. The sample laying flock plus these potential layers on February 1 was about 9 per cent larger than a year ago. However, estimates which include the commercial flocks are expected to show even a larger increase in layers.

—Comment from U. S. D. A. Poultry and Egg Production Report.

## Receipts of Eggs and Poultry

Egg production for January was a record for the month and was an increase of approximately 17 per cent over January 1941, and weekly receipts at central western packing plants around February 1 were more than twice the volume of the corresponding date last year. For the week ending February 21, receipts were approximately 67 per cent greater. On the Pacific Coast, January receipts at packing plants were 10 per cent above a year ago, and in February, receipts increased to 12 to 15 per cent over a year earlier.

Egg receipts on the four principal markets the third week of February exceeded those of the corresponding week last year. This is a reversal of the situation prevailing the first part of February, and for January, when the receipts were under those of last year by approximately 6 per cent.

Receipts of live poultry at central western packing plants declined approximately 50 per cent the first three weeks of February, and averaged approximately 18 per cent below a year ago. Receipts of young stock at mid-western points are particularly low at this season of the year, which is

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in contrast to conditions in eastern areas where specialized broiler production is located near the larger consumer markets.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| Feb. 7 | 62 | 66,877 | 57,819 | +5.49 | +15.67 |
| Feb. 14 | 62 | 68,129 | 60,963 | +1.85 | +11.75 |
| Feb. 21 | 62 | 72,058 | 63,278 | +5.57 | +13.88 |
| Feb. 28 | 62 | 71,416 | 64,226 | 0.89 | +11.19 |

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| Feb. 7 | 27 | 48,374 | +7.43 | +24.65 |
| Feb. 14 | 27 | 43,783 | +3.19 | -32.90 |
| Feb. 21 | 27 | 49,456 | -0.88 | +31.23 |
| Feb. 28 | 24 | 44,386 | +3.29 | +32.41 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1942 | 1941 | % Chg. | Pounds of Poultry (000 omitted) 1942 | 1941 | % Chg. | Pounds of Young Stock (000 omitted) 1942 | 1941 | % Chg. | Pounds of Fowl (000 omitted) 1942 | 1941 | % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb. 7 | 231,043 | 70,591 | +227.30 | 1,701 | 1,856 | – 8.36 | Discontinued | | | 1,148 | 1,574 | –27.09 |
| Feb. 14 | 299,401 | 106,373 | +181.46 | 1,444 | 1,995 | –27.61 | Until Larger | | | 999 | 1,730 | –42.25 |
| Feb. 21 | 324,859 | 121,728 | +166.87 | 1,331 | 1,644 | –19.05 | Volume is | | | 973 | 1,426 | –31.74 |
| Feb. 28 | 374,644 | 146,219 | +156.22 | 1,272 | 1,325 | – 3.98 | Available | | | 977 | 1,160 | –15.73 |

### Receipts of Eggs (cases) at 4 Markets*

| Geographic section | January 1942 | 1941 | % change |
|---|---|---|---|
| New England | 86,324 | 64,026 | +34.8 |
| Middle Atlantic | 232,638 | 236,019 | – 1.4 |
| South Atlantic | 13,452 | 15,193 | –11.5 |
| East North Central | 199,235 | 221,317 | –10.0 |
| West North Central | 253,305 | 408,193 | –37.9 |
| South Central | 2,723 | 1,615 | +68.6 |
| Mountain | 20,914 | 19,486 | + 7.3 |
| Pacific | 24,211 | 15,024 | +61.1 |
| Miscellaneous | 277 | 408 | –32.1 |
| TOTAL | 833,079 | 981,281 | –15.1 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic section | January 1942 | 1941 | % change |
|---|---|---|---|
| New England | 244,789 | 283,541 | –13.7 |
| Middle Atlantic | 1,721,407 | 1,792,566 | – 4.0 |
| South Atlantic | 4,741,922 | 2,504,282 | +89.4 |
| East North Central | 2,318,551 | 2,834,534 | –18.2 |
| West North Central | 11,678,246 | 14,459,797 | –19.2 |
| South Central | 1,271,972 | 1,522,164 | –16.4 |
| Mountain | 1,694,400 | 1,609,182 | + 5.3 |
| Pacific | 1,519,944 | 1,757,318 | –13.5 |
| Miscellaneous | 0 | 0 | – |
| TOTAL | 25,191,231 | 26,763,384 | – 5.9 |

* New York, Chicago, Philadelphia and Boston.

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in contrast to conditions in eastern areas where specialized broiler production is located near the larger consumer markets.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| Feb. 7 | 62 | 66,877 | 57,819 | +5.49 | +15.67 |
| Feb. 14 | 62 | 68,129 | 60,963 | +1.85 | +11.75 |
| Feb. 21 | 62 | 72,058 | 63,278 | +5.57 | +13.88 |
| Feb. 28 | 62 | 71,416 | 64,226 | –0.89 | +11.19 |

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| Feb. 7 | 27 | 48,374 | +7.43 | +24.65 |
| Feb. 14 | 27 | 43,783 | +3.19 | +32.90 |
| Feb. 21 | 27 | 49,456 | –0.88 | +31.23 |
| Feb. 28 | 24 | 44,386 | +3.29 | +32.41 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1942 | Cases of Eggs 1941 | Cases of Eggs % Chg. | Pounds of Poultry (000 omitted) 1942 | Pounds of Poultry 1941 | Pounds of Poultry % Chg. | Pounds of Young Stock (000 omitted) 1942 | Pounds of Young Stock 1941 | Pounds of Young Stock % Chg. | Pounds of Fowl (000 omitted) 1942 | Pounds of Fowl 1941 | Pounds of Fowl % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Feb. 7 | 231,043 | 70,591 | +227.30 | 1,701 | 1,856 | – 8.36 | Discontinued | | | 1,148 | 1,574 | –27.09 |
| Feb. 14 | 299,401 | 106,373 | +181.46 | 1,444 | 1,995 | –27.61 | Until Larger | | | 999 | 1,730 | –42.25 |
| Feb. 21 | 324,859 | 121,728 | +166.87 | 1,331 | 1,644 | –19.05 | Volume is | | | 973 | 1,426 | –31.74 |
| Feb. 28 | 374,644 | 146,219 | +156.22 | 1,272 | 1,325 | – 3.98 | Available | | | 977 | 1,160 | –15.73 |

### Receipts of Eggs (cases) at 4 Markets*

| Geographic section | January 1942 | January 1941 | % change |
|---|---|---|---|
| New England | 86,324 | 64,026 | +34.8 |
| Middle Atlantic | 232,638 | 236,019 | – 1.4 |
| South Atlantic | 13,452 | 15,193 | –11.5 |
| East North Central | 199,235 | 221,317 | –10.0 |
| West North Central | 253,305 | 408,193 | –37.9 |
| South Central | 2,723 | 1,615 | +68.6 |
| Mountain | 20,914 | 19,486 | + 7.3 |
| Pacific | 24,211 | 15,024 | +61.1 |
| Miscellaneous | 277 | 408 | –32.1 |
| TOTAL | 833,079 | 981,281 | –15.1 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic section | January 1942 | January 1941 | % change |
|---|---|---|---|
| New England | 244,789 | 283,541 | –13.7 |
| Middle Atlantic | 1,721,407 | 1,792,566 | – 4.0 |
| South Atlantic | 4,741,922 | 2,504,282 | +89.4 |
| East North Central | 2,318,551 | 2,834,534 | –18.2 |
| West North Central | 11,678,246 | 14,459,797 | –19.2 |
| South Central | 1,271,972 | 1,522,164 | –16.4 |
| Mountain | 1,694,400 | 1,609,182 | + 5.3 |
| Pacific | 1,519,944 | 1,757,318 | –13.5 |
| Miscellaneous | 0 | 0 | – |
| TOTAL | 25,191,231 | 26,763,384 | – 5.9 |

* New York, Chicago, Philadelphia and Boston.

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## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Avg. Egg Price per Doz. (Dollars) | | | Avg. Feed Cost per 100 lbs. (Dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 |
| February 6 | 7.4 | 9.6 | 7.7 | .331 | .20 | .25 | 2.45 | 1.93 | 1.92 |
| February 13 | 7.7 | 9.6 | 7.0 | .312 | .198 | .274 | 2.42 | 1.90 | 1.91 |
| February 20 | 8.0 | 10.1 | 7.1 | .303 | .186 | .268 | 2.42 | 1.89 | 1.91 |
| February 27 | 8.1 | 10.2 | 8.8 | .299 | .185 | .217 | 2.43 | 1.89 | 1.92 |

—Compiled by N. Y. State Department of Agriculture and Markets.

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Price of Fresh Graded Firsts (Dollars) | | Cost of Ration per 100 lbs. (Dollars) | |
|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | 10-Yr. Avg. 1931-40 | 1942 | 1941 | 1942 | 1941 |
| February 7 | 5.68 | 7.00 | 5.94 | .304 | .175 | 1.729 | 1.225 |
| February 14 | 6.01 | 7.11 | 6.07 | .285 | .171 | 1.717 | 1.214 |
| February 21 | 6.10 | 7.48 | 6.15 | .282 | .160 | 1.721 | 1.201 |
| February 28 | 6.06 | 7.38 | 6.41 | .280 | .163 | 1.697 | 1.209 |

### Central California Egg-Feed Ratio

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | | | |
|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | 1939 | 1938 | 1937 |
| January | 6.52 | 6.05 | 9.34 | 6.34 | 6.95 | 7.73 |
| Year | | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 |

—Data Compiled by Edwin C. Voorhies, University of California.

## Egg Prices

Seasonal increases in receipts and declining prices featured the February egg markets. Net declines at Chicago and on Eastern markets ranged from 3 cents to 7 cents, and on Pacific Coast markets from 1 cent to 3 cents. Practically all declines came early in the month, although the markets continued easy and unsettled throughout February. On most markets, prices declined more abruptly than in February 1941. However, the general level was 10 cents to 15 cents per dozen higher than during February 1941.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Mid-Month Farm Price of Eggs Per Dozen

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. 1931-40 | 20.8 | 17.6 | 15.6 | 15.4 | 15.4 | 15.3 | 16.8 | 18.4 | 21.5 | 24.4 | 27.7 | 26.3 |
| 1941 | 19.7 | 16.8 | 16.4 | 19.7 | 20.1 | 23.2 | 25.6 | 26.8 | 30.3 | 31.8 | 35.5 | 34.1 |
| 1942 | 31.3 | | | | | | | | | | | |

### 1942 Egg Prices at New York City

| Kind | Feb. 6 | Feb. 13 | Feb. 20 | Feb. 27 | Feb. 27 '41 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 30¾-31 | 29¾-30 | 29½ | 28½-29 | 17¾ |
| Nearby and Midwestern White Premium Marks | 34 | 33 | 32¾ | 32½ | 19¾-21¼ |
| Nearby and Midwestern White Exchange Specials | 32 | 31 | 31¼-31¼ | 30½ | 19¼ |
| Pacific Coast Specials | 34½-35¼ | 33¾-34¾ | 33¾-34¼ | 33¾-34¼ | 25-25½ |
| Nearby and Midwestern Brown Specials | 32 | 31 | 30¾ | 30½ | 19¼ |

## Government Purchases

Purchases of shell eggs by the Agricultural Marketing Administration were at an increasing rate. Purchases were being made on the New York and Chicago Mercantile Exchange as well as on the offer and acceptance plan. Total Agricultural Marketing Administration purchases for February were approximately 172,500 cases, as compared with approximately 165,000 cases during the previous month.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Purchases of Eggs and Poultry Products by the U. S. D. A.

| Week Ending | Shell Eggs | Dried Eggs | Canned Chicken | Canned Turkey |
|---|---|---|---|---|
| | Cases | 1,000 lbs. | 1,000 lbs. | 1,000 lbs. |
| February 7 | 25,759 | 4,073 | — | — |
| February 14 | 35,390 | 2,361 | — | — |
| February 21 | 42,000 | 4,119 | — | — |
| February 28 | 60,972 | 7,569 | — | — |
| 1942 Total to February 28 | 285,618 | 28,672 | 712 | 84 |

## Eggs in Storage

Storage holdings on February 1 were at their lowest point for the season, and were of little influence on the market. However, eggs moved into storage during February in volume sufficient to slightly more than offset withdrawals. Total holdings in the 35 markets increased only approximately 40,000 cases during February, and on February 28 totaled approximately 330,000 cases, of which about 124,009 cases were held by Government agencies.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Storage Holdings of Eggs**

| Kind | Feb. 1 5-Yr. Avg. 1937-41 | Feb. 1 1941 | Jan. 1 1942 | Feb. 1 1942 | % Change Feb. '41-Feb. '42 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| Shell Egg (cases) | | | | | |
| SMA and FSCC | | 25 | 251 | 193 | +772.00 |
| Commercial | | 272 | 298 | 138 | − 49.27 |
| Total | 255 | 297 | 549 | 331 | + 11.45 |
| Frozen Eggs (lbs.) | | | | | |
| SMA and FSCC | | | 13,519 | 13,946 | |
| Commercial | | | 82,019 | 60,378 | |
| Total | 59,025 | 53,828 | 95,538 | 74,324 | + 38.11 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 1,574 | 1,435 | 2,548 | 1,982 | + 38.11 |
| Total (cases) | 1,829 | 1,732 | 3,097 | 2,313 | + 33.54 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

## Poultry Meat Prices

Prices on fresh dressed poultry advanced during February, and were appreciably higher than a year ago, while receipts of dressed poultry at terminal markets have continued considerably below those of a year ago. Fresh dressed fowl advanced 1 cent to 2 cents on Eastern markets, to close approximately 7 cents above last year's level for the corresponding date. All classes of frozen poultry held firm and unchanged during the month excepting broilers, which declined moderately. Frozen roasters and fryers were generally unchanged during the month at around 2½ cents above a year ago. Frozen broilers were up to 1 cent above a year ago.

An upward price trend on most classes of live poultry prevailed during February. Fowl generally made net gains of from 2 to 3 cents on the larger markets. Light fowl, in a few instances, advanced up to 5 cents. Heavy fryers and roasters were unchanged to moderately higher. Broilers were erratic. At Chicago, net gains of 3 cents were recorded, while on Eastern markets, where seasonal increases in receipts were noted, prices have eased off 1 cent to 2 cents. In comparison with February last year, prices were generally higher. Increases over last year ranged from 3 cents to 6 cents on fowl, up to 2½ cents on young stock, and 5 to 7 cents on turkeys.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Mid-Month Farm Price of Chicken Per Pound**

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. 1931-40 | 13.3 | 13.4 | 13.7 | 14.1 | 14.0 | 13.8 | 13.7 | 13.6 | 13.9 | 13.3 | 13.0 | 12.7 |
| 1941 | 13.7 | 14.0 | 14.4 | 15.7 | 16.3 | 16.3 | 16.8 | 16.3 | 16.3 | 16.0 | 15.5 | 15.8 |
| 1942 | 17.0 | | | | | | | | | | | |

## Poultry in Storage

Storage stocks of frozen poultry on February 1 of approximately 204½ million pounds was about 7 per cent heavier than a year ago, and about 30 per cent above the 5-year average. Stocks of all classes of poultry except turkeys declined during January. Turkey stocks totaling approximately 59 million pounds showed an increase of about 18 per cent over January 1. Stocks of roasters, fowl and turkeys appeared heavy in comparison with a year ago, but only roasters appeared heavy in comparison with the 5-year average. Reductions in holdings in the 35 markets have increased in volume from week to week since the seasonal peak reached around January 10. Reductions during February were approximately 20 million pounds.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Storage Holdings of Poultry**

| Kind | Feb. 1 5-Yr. Avg. 1937-41 | Feb. 1 1941 | Jan. 1 1942 | Feb. 1 1942 | % Change Feb. '41-Feb. '42 |
|---|---|---|---|---|---|
| | | Thousand Pounds | | | |
| Broilers | 12,905 | 9,744 | 14,040 | 12,414 | +27.40 |
| Fryers | 12,620 | 12,867 | 18,148 | 15,846 | +23.15 |
| Roasters | 29,888 | 31,605 | 45,519 | 39,278 | +24.21 |
| Fowls | 26,136 | 35,157 | 44,226 | 37,245 | + 5.96 |
| Turkeys | 45,587 | 65,343 | 50,028 | 59,245 | − 9.32 |
| Ducks | 4,539 | 5,828 | 6,879 | 4,946 | −15.31 |
| Miscellaneous | 25,387 | 17,459 | 21,452 | 20,528 | +17.57 |
| Unclassified | | 13,407 | 18,100 | 15,099 | +12.62 |
| Total | 157,062 | 191,410 | 218,392 | 204,601 | + 6.89 |

## Egg Breaking Operations

Liquid egg production in January is estimated at 17,881,000 pounds, compared with 2,178,000 pounds in January last year, the U. S. Department of Agriculture reports. Approximately three-fourths of this quantity went for drying purposes.

Statistics on egg breaking operations this year must be evaluated from a new viewpoint. Comparison with statistics of other years are no longer significant due to the large expansion in egg breaking operations to fulfill requirements for dried eggs. The liquid eggs necessary to produce dried eggs may reach 600,000,000 pounds this year compared with only 26,000,000 pounds in 1940.

Egg production is increasing seasonally and all egg breaking plants will soon be in full production. The number of layers on farms January 1 was

### Liquid Egg Production, January 1941-42

| | | January 1941 | January 1942 | % change in 1942 |
|---|---|---|---|---|
| | | Thousand Pounds | | |
| Whole eggs | | 1,159 | 16,754 | +1,345 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 52 | 54 | + 4 |
| Egg whites (all descriptions) | | 514 | 608 | + 18 |
| Egg yolks packed | Without sale, sugar, etc. | 307 | 429 | + 40 |
| | With sugar | 100 | 18 | − 82 |
| | With salt | 46 | 18 | − 61 |
| | All yolk emulsions, including glycerine | — | — | – |
| Total | | 2,178 | 17,881 | + 721 |

about 12 per cent larger than on the same date last year and hens are expected to produce in 1942 the largest output of eggs of record. Practically all of the present production of egg breaking plants is from eggs produced currently. Only small quantities of storage eggs were broken in January.

The F. S. C. C. accepted offers on 10,550,230 pounds of dried eggs in January. Offers accepted February 1 to 12 totaled 6,434,060 pounds. Reports from 25 firms that dried eggs in January showed a production of 6,560,002 pounds compared with only 64,550 pounds in January 1941. A few firms are not now reporting their production to the Department, so that the total quantity produced in January will exceed that amount.

The firms reporting stocks of dried eggs on February 1 showed that out of a total of 4,690,812 pounds only 350,848 pounds remained unsold.

Heavy purchases of dried eggs by the Agricultural Marketing Administration featured the dried and frozen egg market. February purchases of dried eggs totaled 18 million pounds, as compared with 10½ million pounds in January. Liquid egg production was on a liberal and increasing scale. January production of 17,881,000 pounds was eight times the volume produced during January, 1941. Approximately three-fourths of this amount was converted to dried eggs to apply on Government purchases. With the seasonal increase in egg production, all breaking plants will soon be in full production. It is estimated that the volume of liquid eggs necessary to fill this year's requirements for dried eggs may reach 600 million pounds.

Frozen egg stocks on February 1 totaled approximately 74 million pounds, compared with 54 million pounds on February 1 last year, and a 5-year (1937-1941) average of approximately 59 million pounds. Government agencies on February 1 had holdings of 21 million pounds. Stocks of dried eggs reported on hand by firms, as of February 1, 1942, amounted to approximately 4½ million pounds. Of this amount, only 350,848 pounds remained unsold.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Dried Egg Production, January 1941-42

| Commodity | Total Reported January 1942 | Same Firm Comparison | | |
|---|---|---|---|---|
| | | Jan. 1941 | Jan. 1942 | % change in 1942 |
| | Pounds | | Pounds | |
| Whole | 6,526,937 | 0 | 6,526,937 | —— |
| Albumen | 21,690 | 21,673 | 21,690 | —— |
| Yolks | 11,375 | 42,877 | 11,375 | − 73 |
| Total | 6,560,002 | 64,550 | 6,560,002 | +10,063 |
| Firms reporting | 25 | 25 | | |

## Hatchery Operations

Production by commercial hatcheries during January was 46,884,000 chicks, exceeding the record output of January 1941 by 5,691,000 chicks or 14 per cent. A slackening of business in the specialized broiler producing sections during January, resulting from the unfavorable price situation in December, was not generally felt by hatcheries starting production for farm flock replacements. The decline in the demand for chicks for broilers, however, has made hatcheries cautious as they enter the regular hatching season. The number of eggs set in January was only 2 per cent larger than the number set in January last year.

The Department of Agriculture reports that the largest gains in the output of chicks occurred in the East North Central and West North Central States with increases of 20 per cent and 29 per cent, respectively. Other gains ranged upward from 5 per cent in the Pacific Coast States and

### Chicks Hatched by Commercial Hatcheries

| Geographic Divisions | Jan. 1939 | Jan. 1940 | Jan. 1941 | Jan. 1942 | % chg. from Jan. 1941 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| New England | 5,394 | 3,853 | 6,022 | 6,343 | + 5 |
| Middle Atlantic | 4,811 | 2,769 | 3,961 | 4,520 | +14 |
| South Atlantic | 6,048 | 5,791 | 8,075 | 8,872 | +10 |
| E. N. Central | 6,033 | 5,416 | 7,150 | 8,553 | +20 |
| W. N. Central | 4,226 | 3,569 | 4,765 | 6,131 | +29 |
| South Central | 7,782 | 5,109 | 6,279 | 7,438 | +18 |
| Mountain | 611 | 339 | 372 | 243 | −35 |
| Pacific | 4,316 | 3,206 | 4,569 | 4,784 | + 5 |
| United States | 39,221 | 30,052 | 41,193 | 46,884 | +14 |

**Eggs Set by Commercial Hatcheries**

| Geographic Divisions | Jan. 1939 | Jan. 1940 | Jan. 1941 | Jan. 1942 | % chg. from Jan. 1941 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| New England | 8,416 | 6,102 | 10,551 | 11,304 | + 7 |
| Middle Atlantic | 11,762 | 7,377 | 9,653 | 10,576 | +10 |
| South Atlantic | 11,835 | 8,714 | 12,767 | 12,667 | − 1 |
| E. N. Central | 14,793 | 9,127 | 17,809 | 18,256 | + 3 |
| W. N. Central | 11,859 | 6,809 | 13,784 | 14,417 | + 5 |
| South Central | 15,584 | 10,872 | 16,130 | 15,453 | − 4 |
| Mountain | 2,031 | 1,403 | 2,286 | 2,282 | — |
| Pacific | 9,830 | 6,780 | 8,774 | 8,975 | + 2 |
| United States | 86,110 | 57,184 | 91,754 | 93,930 | + 2 |

New England States. A decrease of 35 per cent was reported in the Mountain States. The increases in the West North Central and the East North Central States indicate a good demand for chicks for general farm replacements, as these sections produce two-thirds of the country's annual output of hatchery chicks. Quite a few hatcheries in these states, some as far north as Minnesota, operated during January for the first time.

With only a 2 per cent increase in the number of eggs set in January, the output of hatcheries in February will probably not be much different from that of February last year. Many producers, however, are optimistic over the outlook for 1942. Advance orders reported by hatcheries on February 1 showed an increase of 35 per cent over the number on order on the same date last year. Orders were particularly heavy in the West North Central States, where an increase of 69 per cent was reported.

Crop correspondents on February 1 reported they intended to purchase 12 per cent more baby chicks this year than purchased in 1941. The largest increases in intended purchases were reported by producers in the New England and East North Central States, the increases totaling 22 per cent for both sections. The smallest intended increase was 5 per cent reported by producers in the Pacific Coast States.

**Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing**

| Geographic Divisions | Chicks booked Feb. 1 | % Light breed hatched | | % Heavy breed hatched | | Sexing |
|---|---|---|---|---|---|---|
| | % change from Feb. 1, 1941 | Jan. 1941 | Jan. 1942 | Jan. 1941 | Jan. 1942 | % change from Jan. 1941 |
| New England | +38 | 4 | 4 | 96 | 96 | + 16 |
| Middle Atlantic | +26 | 16 | 15 | 84 | 85 | + 82 |
| South Atlantic | +42 | 1 | 1 | 99 | 99 | − 42 |
| E. N. Central | +28 | 7 | 12 | 93 | 88 | − 16 |
| W. N. Central | +69 | 18 | 34 | 82 | 66 | +224 |
| South Central | +20 | 15 | 16 | 85 | 84 | + 33 |
| Mountain | −21 | 18 | 55 | 82 | 45 | — |
| Pacific | +30 | 67 | 65 | 33 | 35 | + 45 |
| United States | +35 | 17 | 19 | 83 | 81 | + 43 |

Emphasis is being placed upon egg production this year in order to fill Government requirements for eggs. Increases in the percentages of light breeds hatched in January compared with January last year was particularly noticeable in reports from the Mountain States, West North Central States and East North Central States. The number of chicks sexed in January was 43 per cent larger than the number sexed a year earlier.

## Using Dried Eggs in the Home

When Great Britain sent out her call for eggs, this country's response was immediate. Since shipping space was at a premium and refrigeration, by which whole eggs could be safely held, was out of the question, the obvious answer was dried eggs, in which form a 30-dozen case of shell eggs is reduced to less than 10 pounds of fluffy powder.

Could a nation with a previous annual production of 10 million pounds of dried eggs expand its facilities ten-fold in a few months? American productive genius answered that question, and today the country's drying plants are producing at the rate of over 200 million pounds of dried eggs a year.

But what will happen when the export demand for dried eggs ceases? Poultrymen aren't the only ones asking that question. Uncle Sam's home economists, working in their Washington, D. C., laboratories, want to know, too, and are already seeking an answer.

When the war ends, American plants will be geared up to such high production levels that they will be able to meet the normal commercial needs by operating only in the spring. Even then, there will be some dried eggs left over. The answer to this problem seems to lie in encouraging the use of dried eggs by housewives.

Several U. S. Department of Agriculture scientific aids are now testing dried eggs, seeking to find more satisfactory measures of quality, and developing new ways of using dried eggs in home cooking.

—Everybodys Poultry Magazine, February, 1942.

CAKE baking contestants were disappointed at the recent annual convention of the Utah Poultry Cooperative Association. Because of sugar-rationing, the contest was cancelled.

## *How Many Eggs Are 48 Billions?*

When you read in your newspaper that the United States Department of Agriculture expects poultry raisers to produce 48 billion eggs in 1942, do you realize how many eggs this represents? Few of us do, and just to give you a better idea, here are some figures which may help you visualize more clearly this huge number of eggs.

It will take 400 million chickens to produce 48 billion eggs in 1942, each laying at the rate of 120 a year. Expressed still another way, 48 billion eggs represent 4 billion dozen or 133 million 30-dozen cases.

If these 133 million cases were loaded into refrigerator cars, 400 cases to the car, it would require 332,250 cars, or a train 2,555 miles long. Such a train would be almost as long as the distance from New York City to Salt Lake City. If these 48 billion eggs were laid end to end, they would stretch 1,890,393 miles—180 times around the earth to make a chain 25 feet in width.

If all these eggs were dried, the finished product in powdered form would be only 1 billion 200 million pounds, which would require 6 million 200-pound barrels to hold it. Actually, the United States expects to dry only 10 per cent of the total egg production, or 600,000 barrels. These eggs whole would require 13 million cases to hold. It can be understood readily why the United States is drying the eggs which are being shipped to Great Britain and our other allies.

One more comparison . . . It would take 60 men 250,000 years to eat and use this number of eggs if each one ate an egg every day for breakfast and the wife used four each day in cooking and baking. And after that there would be enough bad eggs left to carry on a perfect rotten-egging of Hitler, Mussolini, and the Japanese Mikado, giving each American man, woman, and child a dozen precious throws.

—Emil Glazer, San Diego Poultry Journal, January 25, 1942.

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IN TELLING about various poultry superstitions, an Australian mentioned that it is still the practice in various states of the Australian commonwealth to endeavor to forecast the winner of the annual Melbourne cup by setting hens on eggs with the names of the horses marked on the shells. The chicks are timed to hatch a day or so prior to the running of the race, and the first chick to break the shell and hatch foretells the winner of the classic.

On rare occasions, the Australian added, the first chick has managed to satisfy the superstitious mind.

—Lorraine L. Engel, U. S. Egg & Poultry Magazine, February, 1942.

## Good Pay for Cleaning Eggs

To produce clean eggs at this time of the year requires much closer attention to detail than during the dry summer months. The percentage of dirty eggs can be greatly reduced, however, by eliminating some of the causes.

Damp, dirty litter on the floor, unscreened dropping boards, and improper or insufficient nesting material are some of the principal causes. Providing an ample number of properly constructed nests, arranged so the interior will not admit the light prevents fighting or scratching in the nests, thereby eliminaating many cracked or broken eggs. The use of a loose rather fine material such as rice hulls or planer shavings makes the best nesting material.

Although there has been considerable improvement made in egg cleaning equipment, it nevertheless is an expense to buy and operate. It is true that a properly cleaned egg will grade higher than a dirty egg, but it is not as good as one that requires no cleaning.

Assuming that conditions in the laying house are right so that a minimum number of eggs will be dirty when gathered, there will still be a cleaning problem. It is doubtful if much will be gained by cleaning extremely dirty, stained, or cracked eggs. The slightly soiled eggs are the ones that it really pays to clean and these can be cleaned at a good profit if the cleaning is properly done. Eggs with only a few specks of dirt on them obviously should not be buffed or sanded over the entire shell surface in order to remove this slight amount of soil. Such eggs require only a stroke or two with a sandpaper buffer. A motor driven buffer will speed up the cleaning job and do satisfactory work if properly used. In using power cleaners, buffing should be confined to the dirty part of the shell as much as possible. Eggs should never be washed except perhaps those for current use on the farm.

—Eggsaminer, December, 1941.

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IN THE past, Egg Saturday was observed by Oxford students. It was the Saturday preceding Shrove Tuesday and was so-called because, as the eating of eggs was forbidden during Lent, the scholars took leave of them on that day. Eggs were again allowed to be eaten at Easter; hence the introduction of colored Easter eggs.

—Lorraine L. Engel, U. S. Egg & Poultry Magazine, February, 1942.

HENS in Vichy, occupied France, must lay at least 50 eggs a year; otherwise owners will be liable to a fine, says a report in Feedstuffs, February 21, 1942.

# RESULTS OF LAYING TESTS

Holser's Valley Farm's pen of Leghorns at Storrs lead all entries for the second consecutive month on February 1, with a lead of 6.35 points over the second-place Harco Orchards Rhode Island Reds at the Rhode Island test. Of the top ten pens, half are White Leghorns and half Rhode Island Reds, two more Leghorn pens breaking into the lineup during January. Three breeders—Harco Orchards, W. H. Wilson, and Kauder's Pedigreed Leghorns—have two pens among the top ten.

Jack O'Harrow's White Leghorns at the Texas test set a blistering pace during the month of January, shelling out 371 eggs for 399.35 points, an average of 27 eggs and more than 30 points per bird for the 31 days.

Standings within breeds are pretty much as they were on January 1. The Holser's Valley Farm pen has considerably widened its margin over Rapp's Leghorns, and continues to set the pace in the breed. Irving Kauder still has four pens in the top ten.

Harco Orchards' pen overtook W. H. Wilson's Red pen during January, leaving Wilson entries in second and third positions. Competition between Rhode Island Red entries is very keen.

George A. Pearce's Hunterdon entry and Joachim Breeding Farm's top Storrs pen are fighting it out for New Hampshire supremacy. Schaible's Hunterdon Barred Rock entry is 25 points ahead of the next high pen in that breed.

## Twenty High Pens, All Breeds, to Feb. 1—(123 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Holser's Valley Farm | White Leghorn | 1383 | 1450.95 | Storrs |
| Harco Orchards | Rhode Island Red | 1355 | 1444.65 | Rhode Island |
| W. H. Wilson | Rhode Island Red | 1358 | 1432.35 | Georgia |
| Rapp's Poultry Farm | White Leghorn | 1364 | 1425.80 | Hunterdon, N. J. |
| W. H. Wilson | Rhode Island Red | 1394 | 1412.75 | Georgia |
| C. C. Hersey | Rhode Island Red | 1398 | 1397.80 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 1339 | 1388.50 | Storrs |
| Jack O'Harrow | White Leghorn | 1374 | 1385.65 | Texas |
| Harco Orchards | Rhode Island Red | 1293 | 1375.55 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 1289 | 1367.70 | Georgia |
| Peckham Farm | Rhode Island Red | 1322 | 1366.80 | Rhode Island |
| George A. Pearce | New Hampshire | 1321 | 1365.40 | Hunterdon, N. J. |
| Joachim Breeding Farm | New Hampshire | 1310 | 1364.50 | Storrs |
| J. A. Hanson | White Leghorn | 1336 | 1363.70 | Georgia |
| George A. Pearce | New Hampshire | 1323 | 1363.15 | Storrs |
| E. B. Parmenter | Rhode Island Red | 1350 | 1358.15 | Passaic, N. J. |
| J. J. Warren | Rhode Island Red | 1292 | 1353.60 | Maine |
| Kauder's Pedigreed Leghorns | White Leghorn | 1311 | 1352.85 | Georgia |
| Robert C. Cobb | Rhode Island Red | 1335 | 1348.70 | Storrs |
| Hillview Poultry Farm | Rhode Island Red | 1327 | 1347.45 | California |

## High Pen in Each Test to February 1—(123 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Holser's Valley Farm | White Leghorn | 1383 | 1450.95 | Storrs |
| Harco Orchards | Rhode Island Red | 1355 | 1444.65 | Rhode Island |
| W. H. Wilson | Rhode Island Red | 1358 | 1432.35 | Georgia |
| Rapp's Poultry Farm | White Leghorn | 1364 | 1425.80 | Hunterdon, N. J. |
| Jack O'Harrow | White Leghorn | 1374 | 1385.65 | Texas |
| E. B. Parmenter | Rhode Island Red | 1350 | 1358.15 | Passaic, N. J. |
| J. J. Warren | Rhode Island Red | 1292 | 1353.60 | Maine |
| Hillview Poultry Farm | Rhode Island Red | 1327 | 1347.45 | California |
| Babcock's Hatchery | White Leghorn | 1384 | 1339.05 | Pennsylvania |
| Bagby Poultry Farm | Rhode Island Red | 1266 | 1329.45 | Arizona |
| Foreman Poultry Farm | White Leghorn | 1239 | 1308.55 | Missouri |
| J. A. Hanson | White Leghorn | 1275 | 1305.60 | Western New York |
| Crescent Farms | New Hampshire | 1221 | 1267.40 | Florida |
| G. B. Treadwell | Rhode Island Red | 1180 | 1207.10 | Long Island |
| Foreman Poultry Farm | White Leghorn | 1150 | 1193.80 | Central New York |
| J. J. Warren | Rhode Island Red | 1168 | 1179.25 | Michigan |
| Foreman Poultry Farm | White Leghorn | 1235 | 1157.30 | Oklahoma |

## High Pen in Each Test for January

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Jack O'Harrow | White Leghorn | 371 | 399.35 | Texas |
| George A. Pearce | New Hampshire | 366 | 392.75 | Storrs |
| Harco Orchards | Rhode Island Red | 358 | 392.35 | Rhode Island |
| Crooks Farm | Rhode Island Red | 363 | 381.90 | Pennsylvania |
| C. T. Avery & Son | Rhode Island Red | 348 | 365.15 | Passaic, N. J. |
| W. H. Wilson | Rhode Island Red | 338 | 364.75 | Georgia |
| Hillview Poultry Farm | Rhode Island Red | 345 | 359.95 | California |
| Ford's Riverbank Farm | Rhode Island Red | 357 | 359.00 | Maine |
| Del Rio Farm | New Hampshire | 335 | 358.40 | Arizona |
| George A. Pearce | New Hampshire | 328 | 352.10 | Hunterdon, N. J. |
| E. B. Parmenter | Rhode Island Red | 318 | 342.30 | Western New York |
| Foreman Poultry Farm | White Leghorn | 309 | 338.55 | Missouri |
| Martin Weitzler | White Leghorn | 316 | 331.45 | Long Island |
| To-Lani Farm | Rhode Island Red | 312 | 329.85 | Florida |
| J. J. Warren | Rhode Island Red | 304 | 319.00 | Michigan |
| Robert Cook | Barred Rock | 299 | 303.20 | Oklahoma |
| Foreman Poultry Farm | White Leghorn | 273 | 293.20 | Central New York |

## High Pen in Each Breed, to Feb. 1—(123 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Holser's Valley Farm | White Leghorn | 1383 | 1450.95 | Storrs |
| Harco Orchards | Rhode Island Red | 1355 | 1444.65 | Rhode Island |
| George A. Pearce | New Hampshire | 1321 | 1365.40 | Hunterdon, N. J. |
| J. W. Schaible | Barred Rock | 1349 | 1287.10 | Hunterdon, N. J. |
| Harvey E. Taylor | White Wyandotte | 1209 | 1233.95 | Texas |
| Bagby Poultry Farm | White Rock | 1094 | 1138.65 | Texas |
| Ernest Pedigo | Australorp | 1029 | 1065.05 | Arizona |
| Raymond S. Thomas | Ancona | 1020 | 1018.70 | Pennsylvania |
| Harry L. Phillips | Columbian Rock | 890 | 943.30 | Missouri |
| Imperial Breeding Farm | White Giant | 869 | 868.20 | Maine |
| T. D. Brown | White Minorca | 795 | 819.00 | Texas |
| Dryden Poultry Breeding Farm | Cross | 809 | 797.30 | California |
| Miami Hatchery | Buff Rock | 784 | 760.85 | Michigan |
| Horne's Hatchery | Black Minorca | 706 | 757.30 | Texas |
| C. A. Richardson | Buff Leghorn | 769 | 678.95 | Hunterdon, N. J. |
| Henry F. Waitt | Buff Minorca | 704 | 666.50 | Maine |
| Imperial Poultry Farm | New Hampshire White | 590 | 625.85 | Missouri |
| Iowa Master Breeders | Buff Orpington | 690 | 621.90 | Texas |
| Wellington Wells | Silver Laced Wyandottes | 646 | 565.80 | Maine |
| Philip Maddux | Black Leghorn | 334 | 304.15 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 306 | 286.75 | Florida |

## High Hen, Each Breed, to Feb. 1—(123 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 118 | 129.55 | Maine |
| Dryden Poultry Breeding Farm | Barred Rock | 118 | 128.00 | Storrs |
| Rinker Poultry Farm | White Leghorn | 118 | 126.90 | Pennsylvania |
| Ebenwood Farm | New Hampshire | 114 | 121.50 | Rhode Island |
| Paul Hansen | Australorp | 108 | 114.60 | California |
| Drumm Egg Farm | White Rock | 107 | 114.25 | Georgia |
| Harvey E. Taylor | White Wyandotte | 101 | 108.40 | Texas |
| Imperial Breeding Farm | White Giant | 99 | 105.20 | Maine |
| Raymond S. Thomas | Ancona | 95 | 103.75 | Pennsylvania |
| Maine Test Pen | Cross | 97 | 99.40 | Maine |
| Harry L. Phillips | Columbian Rock | 95 | 99.05 | Missouri |
| Henry F. Waitt | Buff Minorca | 92 | 92.50 | Maine |
| Miami Hatchery | Buff Rock | 87 | 91.10 | Michigan |
| T. D. Brown | White Minorca | 83 | 90.05 | Texas |
| Imperial Breeding Farm | New Hampshire White | 84 | 89.85 | Missouri |
| Horne's Hatchery | Black Minorca | 76 | 79.90 | Texas |
| Iowa Master Breeder | Buff Orpington | 75 | 74.55 | Texas |
| C. A. Richardson | Buff Leghorn | 74 | 71.25 | Hunterdon, N. J. |
| Wellington Wells | Silver Laced Wyandottes | 70 | 64.00 | Maine |
| Philip Maddux | Black Leghorn | 63 | 54.10 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 43 | 42.80 | Florida |

## High Hen in Each Test to Feb. 1—(123 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 118 | 129.55 | Maine |
| Harco Orchards | Rhode Island Red | 118 | 128.55 | Storrs |
| E. B. Parmenter | Rhode Island Red | 117 | 127.00 | Passaic, N. J. |
| Rinker Poultry Farm | White Leghorn | 118 | 126.90 | Pennsylvania |
| Rapp's Poultry Farm | White Leghorn | 118 | 125.35 | Hunterdon, N. J. |
| Bagby Poultry Farm | Rhode Island Red | 114 | 124.25 | Arizona |
| J. A. Hanson | White Leghorn | 114 | 124.10 | Georgia |
| Peckham Farm | Rhode Island Red | 118 | 123.80 | Rhode Island |
| J. J. Warren | Rhode Island Red | 111 | 122.05 | Western New York |
| To-Lani Farm | Rhode Island Red | 114 | 121.50 | Florida |
| Howard Breeding Farm | New Hampshire | 115 | 121.40 | California |
| Jack O'Harrow | White Leghorn | 113 | 120.40 | Texas |
| J. J. Warren | Rhode Island Red | 113 | 120.20 | Michigan |
| T. H. Mettler | Rhode Island Red | 111 | 116.65 | Long Island |
| Foreman Poultry Farm | White Leghorn | 106 | 115.60 | Central New York |
| Foreman Poultry Farm | White Leghorn | 112 | 114.85 | Missouri |
| Booth Farms and Hatcheries | White Leghorn | 104 | 112.85 | Oklahoma |

## Twenty High White Leghorn Pens to Feb. 1—(123 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Holser's Valley Farm | 1383 | 1450.95 | Storrs |
| Rapp's Poultry Farm | 1364 | 1425.80 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns . | 1339 | 1388.50 | Storrs |
| Jack O'Harrow | 1374 | 1385.65 | Texas |
| Kauder's Pedigreed Leghorns | 1289 | 1367.70 | Georgia |
| J. A. Hanson | 1336 | 1363.70 | Georgia |
| Kauder's Pedigreed Leghorns | 1311 | 1352.85 | Georgia |
| Kauder's Pedigreed Leghorns | 1248 | 1341.80 | Texas |
| Babcock Hatchery | 1384 | 1339.05 | Pennsylvania |
| W. A. Seidel | 1296 | 1333.55 | Texas |
| Kauder's Pedigreed Leghorns | 1253 | 1333.50 | Pennsylvania |
| Nelson's Breeding Farm | 1263 | 1328.05 | Arizona |
| Holser's Valley Farm | 1357 | 1319.05 | Storrs |
| J. A. Hanson | 1265 | 1311.40 | Pennsylvania |
| Foreman Poultry Farm | 1239 | 1308.55 | Missouri |
| J. A. Hanson | 1275 | 1305.60 | Western New York |
| Foreman Poultry Farm | 1298 | 1302.40 | Storrs |
| Babcock's Hatchery | 1319 | 1301.75 | Pennsylvania |
| Burr's Poultry Farm | 1300 | 1300.90 | Pennsylvania |
| Howard Woodward | 1245 | 1293.05 | Hunterdon, N. J. |

## Twenty High Rhode Island Red Pens to Feb. 1—(123 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Harco Orchards | 1355 | 1444.65 | Rhode Island |
| W. H. Wilson | 1358 | 1432.35 | Georgia |
| W. H. Wilson | 1394 | 1412.75 | Georgia |
| C. C. Hersey | 1398 | 1397.80 | Storrs |
| Harco Orchards | 1293 | 1375.55 | Storrs |
| Peckham Farm | 1322 | 1366.80 | Rhode Island |
| E. B. Parmenter | 1350 | 1358.15 | Passaic, N. J. |
| J. J. Warren | 1292 | 1353.60 | Maine |
| J. J. Warren | 1283 | 1351.60 | Rhode Island |
| R. C. Cobb | 1335 | 1348.70 | Storrs |
| Hillview Poultry Farm | 1327 | 1347.45 | California |
| E. B. Parmenter | 1315 | 1340.60 | Storrs |
| Ford's Farm | 1337 | 1340.00 | Storrs |
| J. J. Warren | 1292 | 1333.90 | Storrs |
| R. W. Anderson | 1248 | 1340.00 | Rhode Island |
| G. B. Treadwell | 1307 | 1332.20 | Maine |
| J. J. Warren | 1298 | 1330.55 | Georgia |
| Bagby Poultry Farm | 1266 | 1329.45 | Arizona |
| David T. Cohen | 1278 | 1326.70 | Georgia |
| Thomas H. Mettler | 1391 | 1316.40 | Storrs |

## Twenty High New Hampshire Pens to Feb. 1—(123 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| George A. Pearce | 1321 | 1365.40 | Hunterdon, N. J. |
| Joachim Breeding Farm | 1310 | 1364.50 | Storrs |
| George A. Pearce | 1323 | 1363.15 | Storrs |
| J. H. Horne | 1249 | 1297.20 | Storrs |
| Crescent Farms | 1221 | 1267.40 | Florida |
| Joachim Breeding Farm | 1215 | 1261.05 | Hunterdon, N. J. |
| Thos. J. Harrold | 1251 | 1230.10 | Georgia |
| Ebenwood Farm | 1157 | 1222.00 | Rhode Island |
| Howard Breeding Farm | 1164 | 1212.55 | California |
| Hubbard Farms | 1194 | 1203.75 | Storrs |
| Hubbard Farms | 1185 | 1196.60 | Western New York |
| Pine Top Poultry Farms | 1122 | 1184.70 | Rhode Island |
| Hubbard Farms | 1204 | 1183.05 | Pennsylvania |
| C. D. Cummings | 1202 | 1174.50 | Georgia |
| J. H. Horne | 1170 | 1174.35 | Pennsylvania |
| H. S. Twichell | 1161 | 1166.40 | Storrs |
| Pine Mountain Valley Farms | 1175 | 1160.55 | Georgia |
| Pine Mountain Valley Farms | 1158 | 1160.55 | Georgia |
| Hubbard Farms | 1175 | 1153.60 | Georgia |
| W. G. Ashby | 1076 | 1153.00 | Arizona |

## Twenty High Barred Plymouth Rock to Feb. 1—(123 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| J. W. Schaible | 1349 | 1287.10 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 1281 | 1262.55 | Storrs |
| Dryden Poultry Breeding Farm | 1216 | 1225.65 | Storrs |
| Foster Jameson | 1170 | 1213.35 | Maine |
| Harco Orchards | 1193 | 1213.10 | Rhode Island |
| Angus Urquhart | 1252 | 1206.45 | Maine |
| Harco Orchards | 1286 | 1189.55 | Maine |
| Pine Top Poultry Farm | 1107 | 1165.15 | Rhode Island |
| Hockhockson Farm | 1135 | 1159.00 | Hunterdon, N. J. |
| Peachblow Farm | 1156 | 1136.25 | Maine |
| Dryden Poultry Breeding Farm | 1169 | 1135.10 | Pennsylvania |
| Vincent Nasto | 1159 | 1123.00 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 1152 | 1123.05 | California |
| Dryden Poultry Breeding Farm | 1156 | 1118.65 | California |
| Penn's Poultry Breeding Farm | 1112 | 1095.20 | Texas |
| Fisher Orchards | 1027 | 1071.05 | Pennsylvania |
| Riley Poultry Farm | 1087 | 1064.30 | Pennsylvania |
| Angus J. Urquhart | 1081 | 1053.80 | Passaic, N. J. |
| Harco Orchards | 1011 | 1040.60 | Storrs |
| David T. Cohen | 1041 | 1039.30 | Pennsylvania |

## Twenty High White Plymouth Rock Pens to Feb. 1—(123 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Bagby Poultry Farm | 1094 | 1138.65 | Texas |
| Riley Poultry Farm | 1137 | 1105.45 | Storrs |
| Holtzapple Poultry Farm | 1117 | 1103.65 | Georgia |
| Riley Poultry Farm | 1122 | 1102.70 | Georgia |
| Missouri Valley Hatchery | 1108 | 1101.70 | Georgia |
| Ralph DeYoung | 1081 | 1081.25 | Maine |
| Carter-Dunham | 1040 | 1064.40 | Pennsylvania |
| Missouri Valley Poultry Farm | 1011 | 1051.70 | Texas |
| Carter-Dunham | 998 | 1044.80 | Georgia |
| Albert C. Lawton | 1061 | 1044.60 | Rhode Island |
| Townsley Farm | 1013 | 1026.10 | Georgia |
| Carter-Dunham | 962 | 1015.55 | Texas |
| Four Winds Farm | 1006 | 1006.70 | Michigan |
| Albert C. Lawton | 987 | 1003.10 | Storrs |
| Kerr Chickeries | 1012 | 1002.55 | Maine |
| Booth Farms and Hatchery | 986 | 993.60 | Texas |
| Pay Streak Hatchery | 978 | 987.70 | Pennsylvania |
| R. K. Shearer | 1036 | 978.05 | Pennsylvania |
| Kerr Chickeries | 970 | 967.60 | Hunterdon, N. J. |
| Inspiration Acres | 1041 | 966.25 | Florida |

## Average Production and Mortality, Each Test, to Feb. 1—(123 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for Jan. | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Hunterdon, N. J. | 624 | 83.62 | 83.72 | 24.02 | 2.60 | 4.49 |
| Arizona | 390 | 80.58 | 83.60 | 24.75 | 1.42 | 4.24 |
| Rhode Island | 611 | 80.71 | 82.58 | 24.46 | 1.96 | 6.06 |
| Georgia | 1,326 | 82.07 | 81.14 | 23.76 | 1.44 | 4.45 |
| Storrs | 1,352 | 80.25 | 80.46 | 24.04 | .74 | 2.89 |
| Pennsylvania | 1,105 | 80.15 | 79.46 | 23.82 | .44 | 2.53 |
| Texas | 1,456 | 74.54 | 75.20 | 24.16 | .76 | 3.51 |
| Passaic, N. J. | 871 | 71.18 | 70.90 | 23.92 | 1.95 | 6.43 |
| Florida | 1,118 | 70.50 | 70.13 | 23.88 | 1.25 | 4.30 |
| Maine | 988 | 71.50 | 69.85 | 23.52 | .81 | 2.94 |
| California | 598 | 68.53 | 67.69 | 23.74 | 1.33 | 3.68 |
| Western New York | 975 | 61.62 | 62.42 | 24.24 | .92 | 2.67 |
| Oklahoma | 650 | 59.95 | 58.65 | 23.56 | .61 | 3.08 |
| Central New York | 1,066 | 55.13 | 55.46 | 24.10 | 1.55 | 3.38 |
| Michigan | 884 | 56.81 | 54.37 | 23.10 | 4.10 | 9.62 |
| Long Island | 1,092 | 55.59 | 54.24 | 23.52 | 1.46 | 3.85 |
| Missouri | 780 | 50.34 | 52.36 | 24.80 | 1.41 | 4.11 |
| All Tests | 15,873 | 69.59 | 69.54 | 23.96 | 1.45 | 4.24 |

POULTRY has become so scarce a food in English restaurants that patrons place their orders weeks in advance. A New York Times writer, lunching in a prominent London restaurant, saw a half dozen chickens roasting on a spit. He asked to have some, but was informed by the waiter that they were all that were left of those allotted to the restaurant that day and that all had been promised to clients who had placed their orders a week or two before.

MICE can be trapped successfully in a grain room, says Harland Dunn, Massachusetts, in Eastern States Cooperator for February, 1942. Dunn simply fills a 3-pound shortening can half full of linseed oil, places it close to bags of feed, and fishes the mice out next morning. Mice drown trying to get at the oil, for which they have a great liking.

**The influence of the POULTRY DIGEST extends well beyond our own circle of subscribers, in fact, beyond the limits of the United States. Other editors, particularly those of the cooperative publications, have depended a great deal upon the judgment of the DIGEST, and they have used feature articles, talks, research reviews, and other items which have been culled and sifted out from a variety of sources for use in this little publication.**

**When some of this material is lifted from the DIGEST without credit to this publication or the original source, as sometimes happens, there is always the danger that we may, in our search for articles, pick up something that has already appeared in the DIGEST. So much material is examined each month that it is impossible to trust entirely to memory as to what has gone before.**

**Recent issues of two Australian poultry publications, *The Australasian Poultry World* and *Poultry*, carried leading articles that originally appeared in the POULTRY DIGEST last fall. Both have used articles from the DIGEST on previous occasions. The *South African* Poultry Journal is another which has used DIGEST material from time to time.**

* * *

**Paper rationing is having its effect on English poultry journals. While they continue to use newsprint, as they have in the past, their page size has been greatly reduced. *Modern Poultry Keeping,* formerly *Eggs,* is now 6½ by 9½ inches. *Poultry Farmer,* with which is combined *Feathered World,* is now 8¼ by 11¼ inches. Both were formerly tabloid size.**

* * *

**This month we have started a new department, "War and the Poultry Raiser." Its purpose is to record the various actions of the government and war developments which have some effect upon poultry raisers. Judging by the moves which have been made thus far, it would appear that this department will not go without material.**

## Twenty High White Plymouth Rock Pens to Feb. 1—(123 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Bagby Poultry Farm | 1094 | 1138.65 | Texas |
| Riley Poultry Farm | 1137 | 1105.45 | Storrs |
| Holtzapple Poultry Farm | 1117 | 1103.65 | Georgia |
| Riley Poultry Farm | 1122 | 1102.70 | Georgia |
| Missouri Valley Hatchery | 1108 | 1101.70 | Georgia |
| Ralph DeYoung | 1081 | 1081.25 | Maine |
| Carter-Dunham | 1040 | 1064.40 | Pennsylvania |
| Missouri Valley Poultry Farm | 1011 | 1051.70 | Texas |
| Carter-Dunham | 998 | 1044.80 | Georgia |
| Albert C. Lawton | 1061 | 1044.60 | Rhode Island |
| Townsley Farm | 1013 | 1026.10 | Georgia |
| Carter-Dunham | 962 | 1015.55 | Texas |
| Four Winds Farm | 1006 | 1006.70 | Michigan |
| Albert C. Lawton | 987 | 1003.10 | Storrs |
| Kerr Chickeries | 1012 | 1002.55 | Maine |
| Booth Farms and Hatchery | 986 | 993.60 | Texas |
| Pay Streak Hatchery | 978 | 987.70 | Pennsylvania |
| R. K. Shearer | 1036 | 978.05 | Pennsylvania |
| Kerr Chickeries | 970 | 967.60 | Hunterdon, N. J. |
| Inspiration Acres | 1041 | 966.25 | Florida |

## Average Production and Mortality, Each Test, to Feb. 1—(123 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for Jan. | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Hunterdon, N. J. | 624 | 83.62 | 83.72 | 24.02 | 2.60 | 4.49 |
| Arizona | 390 | 80.58 | 83.60 | 24.75 | 1.42 | 4.24 |
| Rhode Island | 611 | 80.71 | 82.58 | 24.46 | 1.96 | 6.06 |
| Georgia | 1,326 | 82.07 | 81.14 | 23.76 | 1.44 | 4.45 |
| Storrs | 1,352 | 80.25 | 80.46 | 24.04 | .74 | 2.89 |
| Pennsylvania | 1,105 | 80.15 | 79.46 | 23.82 | .44 | 2.53 |
| Texas | 1,456 | 74.54 | 75.20 | 24.16 | .76 | 3.51 |
| Passaic, N. J. | 871 | 71.18 | 70.90 | 23.92 | 1.95 | 6.43 |
| Florida | 1,118 | 70.50 | 70.13 | 23.88 | 1.25 | 4.30 |
| Maine | 988 | 71.50 | 69.85 | 23.52 | .81 | 2.94 |
| California | 598 | 68.53 | 67.69 | 23.74 | 1.33 | 3.68 |
| Western New York | 975 | 61.62 | 62.42 | 24.24 | .92 | 2.67 |
| Oklahoma | 650 | 59.95 | 58.65 | 23.56 | .61 | 3.08 |
| Central New York | 1,066 | 55.13 | 55.46 | 24.10 | 1.55 | 3.38 |
| Michigan | 884 | 56.81 | 54.37 | 23.10 | 4.10 | 9.62 |
| Long Island | 1,092 | 55.59 | 54.24 | 23.52 | 1.46 | 3.85 |
| Missouri | 780 | 50.34 | 52.36 | 24.80 | 1.41 | 4.11 |
| All Tests | 15,873 | 69.59 | 69.54 | 23.96 | 1.45 | 4.24 |

POULTRY has become so scarce a food in English restaurants that patrons place their orders weeks in advance. A New York Times writer, lunching in a prominent London restaurant, saw a half dozen chickens roasting on a spit. He asked to have some, but was informed by the waiter that they were all that were left of those allotted to the restaurant that day and that all had been promised to clients who had placed their orders a week or two before.

MICE can be trapped successfully in a grain room, says Harland Dunn, Massachusetts, in Eastern States Cooperator for February, 1942. Dunn simply fills a 3-pound shortening can half full of linseed oil, places it close to bags of feed, and fishes the mice out next morning. Mice drown trying to get at the oil, for which they have a great liking.

**The influence of the Poultry Digest extends well beyond our own circle of subscribers, in fact, beyond the limits of the United States. Other editors, particularly those of the cooperative publications, have depended a great deal upon the judgment of the Digest, and they have used feature articles, talks, research reviews, and other items which have been culled and sifted out from a variety of sources for use in this little publication.**

**When some of this material is lifted from the Digest without credit to this publication or the original source, as sometimes happens, there is always the danger that we may, in our search for articles, pick up something that has already appeared in the Digest. So much material is examined each month that it is impossible to trust entirely to memory as to what has gone before.**

**Recent issues of two Australian poultry publications, *The Australasian Poultry World* and *Poultry*, carried leading articles that originally appeared in the Poultry Digest last fall. Both have used articles from the Digest on previous occasions. The *South African* Poultry Journal is another which has used Digest material from time to time.**

* * *

**Paper rationing is having its effect on English poultry journals. While they continue to use newsprint, as they have in the past, their page size has been greatly reduced. *Modern Poultry Keeping*, formerly *Eggs*, is now 6½ by 9½ inches. *Poultry Farmer*, with which is combined *Feathered World*, is now 8¼ by 11¼ inches. Both were formerly tabloid size.**

* * *

**This month we have started a new department, "War and the Poultry Raiser." Its purpose is to record the various actions of the government and war developments which have some effect upon poultry raisers. Judging by the moves which have been made thus far, it would appear that this department will not go without material.**

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NATIONAL

POULTRY DIGEST

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Vol. 4, No. 40 April, 15, 1942

# Bottlenecks of the Poultry Industry

By J. HOLMES MARTIN
Purdue University

*Reprinted from Poultry Tribune*

BOTTLENECKS can retard the progress of any industry. Poultrymen can well afford to earmark certain bottlenecks in their own industry for immediate "scuttling." Although some of these so-called bottlenecks may seem unimportant to certain readers, the writer believes that the industry can be materially improved through the elimination of the harmful and undesirable practices set forth.

## 1. Doubtful Interior Quality

The housewife who breaks open what appears to be a fine looking egg and finds its contents unfit for human consumption is rightfully discouraged, and she may set up "sales resistance" to eggs. If the poultry industry can remove the doubt about the interior quality of eggs offered for sale through the retail outlets, then a long stride will have been taken toward breaking down the prejudice against eggs that exists in the minds of many consumers.

The development and increasing use of government grades, as well as many state grades and labels, plus the marketing of eggs through channels in which the quality is guaranteed by the wholesaler and retailer, are doing much to break down this doubt.

Poultry-Dairy Publishing Co., Mt. Morris, Ill.
(Poultry Tribune, April, 1942)

One has only to remember his own attitude in purchasing other products to understand what the average city housewife is up against in the purchase of eggs. When you buy olives, you see through the bottle, and there is little doubt in your mind as to their size and quality. However, in buying a cantaloupe you may have considerable doubt, even to the extent of dodging the assignment to make a purchase of a few melons. If one could be sure that the cantaloupe he buys is ripe and of good interior quality, he would be much more apt to make the purchase.

The same psychology applies to the purchase of eggs. It is possible for the candler to determine the interior quality of the egg, but whether or not this quality is preserved from the time he candles the egg until the housewife breaks it in the kitchen is another matter. This leads to a second bottleneck.

### 2. Inadequate Egg Holding Facilities

Much of the deterioration of the interior quality of the eggs may be traced directly to the fact that quality is not preserved from the time the egg leaves the nest until it reaches the consumers kitchen. Much of this deterioration in quality may be traced to insufficient and inadequate cooling facilities on the farm, enroute to market, and particularly in the retail outlets in the towns and cities.

Most of us see eggs displayed on an open counter in a room that may be 90° F. or warmer in grocery stores during the summer months. Seldom do we mention to the grocer the fact that under such conditions eggs are deteriorating rapidly in quality. We do little to encourage the retailer to improve his facilities for maintaining quality. Many egg cooling rooms and devices have been developed that are practical for the general farm, and their use should be encouraged. The retailers are able now to provide refrigeration at a relatively low cost.

This bottleneck of inadequate facilities for maintaining interior egg quality will be removed only when it becomes more profitable to provide such facilities. In areas near egg auctions and cooperative shipping associations, these facilities are found in large numbers, for a market sensitive to quality is near at hand. A premium for quality eggs serves to make available the financial resources required to improve egg holding facilities. Seldom do hucksters and country stores buy on grade and offer this premium.

### 3. Unattractive Displays of Poultry

Additional sales resistance is charged to poultry products because of the way in which much of our poultry is displayed. While the necks of certain animals, such as swans, may be attractive, I have yet to see an attractive appearing neck on a dressed chicken or a fried chicken being served on a platter. Yet much of our poultry is displayed with the ungainly and unattractive neck and legs still on the carcass. Compare this with the attractiveness of a shoulder of lamb, a side of bacon, or a ham seen in the average butcher shop.

Increasingly now, butchers and other retailers realize the value of dressing birds ready for the oven and displaying them in a way that tempts the housewife to buy a fryer or roaster. Attractive packaging with labels indicative of grade will do much to develop consumer appeal, as would also preparing poultry in many different forms, shapes, and sizes of packages to meet the competition of other competitive products so displayed.

### 4. Uncertain Livability, Longevity

Average farm poultry flocks need more careful breeding for livability and longevity. From 1900 to 1920, the efforts of the poultry breeders were largely devoted to establishing the breeds, improving the body type or breed type, fixing feather pattern and feather color, and improving the comb and other external characteristics. During the second 20-year period of 1920 to 1940, the breeders' efforts were devoted to establishing internal or physiological characteristics associated with rapid growth, early maturity, high egg production, and hatchability.

To be sure, egg size and other important market qualities have not been neglected, but only in recent years have many of our breeders devoted much energy and attention to the breeding of poultry for high viability or livability. Those who remember when the hatchery industry was just getting under way will recall that luck alone was responsible for purebred chicks. As for breeding for egg production or egg size, little thought had been given to those qualities. The National Poultry Improvement Plan and other programs for breed improvement and disease control were not yet under way, and they had not begun to influence the quality of the chicks.

Today it is not unusual to purchase, at 8 to 10 cents each, chicks with considerable breeding for egg production. Chicks far superior to those available 20 years ago are now distributed by millions to the general farms throughout the nation. During the past two decades breeders who emphasized those characters associated with egg production, egg size, and high hatchability retained and improved breed traits that they received.

During the next 20 years I look for marked improvement in the qualities of livability and longevity in our flocks. Why should the industry continue to suffer from a laying house mortality of 20 to 30 per cent? Much of this mortality is being corrected through adequate sanitation programs and through good feeding practices.

However, these steps take us only part of the way; we must breed for high livability if we are to reduce mortality to the minimum. Many of our pullets are profitable only during their first laying year. How long would the dairy industry continue to function if dairy cows were profitable only during their first lactation period? The dairyman has bred his cows so they are profitable often from five to eight or more lactation periods. This procedure reduces the overhead that must be borne by the industry in raising a heifer calf to her age of productivity. The poultry industry again and again is rearing pullets through the first six months and then charging this growing cost against a laying period of six months to one year.

When we breed hens that are profitable during the second and even third laying year, we shall be able then to distribute this cost of producing a pullet ready for the laying house among the two or three laying seasons and thereby increase our profits. The poultry breeder who recognizes the growing need for stock bred for livability and longevity will indeed be happy that he realized the need of these qualities when he profits from future sales. The program is a long time one, but the far-sighted breeder will not hesitate to tackle the job.

### 5. Delayed Diagnosis of Disease

Much of the trouble in controlling poultry diseases is due to the fact that the disease gets well under way before the flockowner determines the cause of the trouble. Sometimes he waits until a number of birds have died before he gets "stirred up" and seeks advice from his feed dealer, his hatcheryman, or county agent. Then, when a few more die, he may send some of the birds to a diagnostic laboratory such as the ones maintained by agricultural experiment stations or commercial research organizations. By the time a report is received and control measures are put into practice, much of the harm of the infection already has been done.

Practicing physicians know that successful diagnosis is a major step toward the control of disease in humans, and the same fact is just as true with chickens. It is unfortunate that we do not have adequate diagnostic facilities with trained personnel to aid our poultry producers. In many cases the diagnosis fits the treatment available at a price.

This problem can be solved best just the way it has been solved for the swine, cattle, sheep, and dairy industries, and even small animals—namely, through practicing veterinarians who can be summoned by telephone in a few minutes. Poultrymen have criticized freely the veterinary profession for its failure to realize the value of the poultry industry and to give the poultryman the counsel, advice, and diagnostic service offered to breeders of other livestock.

However, much of the fault lies with the poultryman, for he has not called on the veterinarian often enough to stimulate him to become well informed on poultry pathology. As more and more poultrymen become conscious of the fact that the veterinarian can give them many suggestions regarding sanitation, hygiene, and disease control, even though the veterinarian in the community may not have done special work with poultry, they will begin to call on him more frequently rather than to depend on persons who have had no training in the field of pathology and animal hygiene.

In the more important poultry producing areas, veterinarians are becoming well informed in poultry pathology and are offering invaluable diagnostic services to poultrymen in the neighborhood—in many cases at one dollar for each diagnosis or office call. Every possible step should be taken by the poultry industry and the veterinary profession to encourage closer working interests.

### 6. Inflexible Poultry Housing

Poultry houses in many different areas are proving highly satisfactory. Yet, in many cases, a house which has been built from the same blue print as one that has given excellent results does not prove to be suitable to some other poultryman in another neighborhood.

A feature to be desired in a poultry house is "convertibility." I have been told by those responsible for farm loans that they allow very little extra on a farm just because there are some poultry houses there. It is their experience that certain farmers do very well with poultry, but others do not, so they just discount the poultry houses and allow nothing extra for them.

If these poultry houses could be converted easily they would be more of an asset to the farm.

### 7. Lack of Trained Leadership

Although the poultry industry has made tremendous strides in leadership during the past 20 years, there is still much need for more trained, practical leadership in the industry. The great desire for further training is witnessed by the attendance of the various poultry short courses, summer schools, culling schools, hatchery schools, and educational programs at the various meetings of the industry, as well as the increase in the number of students taking poultry courses in the agricultural colleges, both in undergraduate and graduate work. As this additional trained, practical personnel takes its place in the industry in increasing numbers, we can anticipate our industry rising to even greater heights.

# Increasing Egg Production

By CLIFF D. CARPENTER

Chairman, Special Committee on Poultry Diseases
American Veterinary Medical Association

*Condensed from Journal of the American Veterinary Medical Association*

POULTRYMEN of the United States are an important factor in supplying food to the United Nations under the terms of the Lend-Lease Act, as administered by the Surplus Marketing Administration. To meet the egg-production quota set by Secretary of Agriculture Wickard, the numbers of poultry in this country will be increased greatly. This unusual expansion presages greater losses from disease and enlarges the responsibility of the veterinarian as custodian of poultry health.

The Special Committee on Poultry Diseases recognized this situation not only as a challenge to the practitioner, but also as his opportunity to serve. Accordingly, its members prepared a veterinary poultry program based upon the premise that reduction of adult mortality offers the soundest method of attaining the necessary increase.

## Increasing Production

If the available knowledge of poultry-disease control were fully utilized, the present adult mortality and loss of egg production from disease in this country could be reduced 50 per cent in one year.

To fulfill its part in winning the war, the poultry industry must invoice its resources and outline its campaign of attack. Since the great majority of our poultry is located between the Allegheny and the Rocky Mountains, attention should be focused on this large area, where poultry is of secondary or tertiary importance on all but a few farms. Increased production can result only from:

1) Increasing the numbers of layers on farms.
2) Increasing the rate of production.
3) Increasing livability.

Obviously, a combination of these factors is most desirable, but a critical examination of the situation reveals that the 1942 egg-production goal can be reached with the greatest expediency and certainty by a concentrated effort to increase livability.

### 1. Increasing the Numbers of Layers

The numbers of layers housed can be increased by:

American Veterinary Medical Association, 600 S. Michigan Ave., Chicago, Ill.
(Journal of the American Veterinary Medical Association, April, 1942)

a. Converting other farm buildings to poultry use.

b. Building new brooder and laying houses.

c. Increasing the number of chicks and layers per 100 square feet of floor space in the poultry buildings now in use.

**a. Conversion of Buildings.** — In the Midwest there are only a few farm buildings that can be converted quickly and economically to poultry use without sacrificing production of other farm animals. However, such conversion will accommodate only a fraction of the 1942 increase in poultry population.

**b. Building New Houses.** — Although some construction is under way, to attempt to accommodate the entire increase through this means is clearly poor economy at this time.

**c. Decreasing Floor Space Per Bird.** — A large part of the increase must be accommodated by decreasing floor space per bird. The incidence of disease will be increased in direct proportion to the increase in crowding.

A conservative estimate of the poultry housing facilities in the United States reveals that not more than 10 per cent of the adult flocks now have adequate floor space. Authorities agree that when layers are confined, light breeds require 3½ square feet of floor space per bird in order to make a satisfactory economic return, and that heavy breeds require 4 square feet. It may be argued that Leghorns do not need 3½ square feet of floor space, and that Barred Rocks do not need 4 square feet of floor space, but experiment stations have shown that the rate of egg production increases directly with floor space per bird and, conversely, that mortality decreases with the increase in floor space per bird.

In other fields of animal production, housing practices are much more standard. Scarcely one out of 100 dairymen would fail to provide adequate stanchion and platform space for his animals. Stanchion stalls are almost universally 3½ feet in width; platform lengths in Utah, Wisconsin and Florida do not vary 2 inches for a given breed. If a dairy farmer has five empty stanchions and raises seven heifer calves to maturity, it would be impossible to stanchion these seven animals in five stalls. The extra heifers might be fed from buckets or, to exaggerate, they might exist by eating bedding, and roughage and concentrates by forcing their way between stanchioned animals, but the owner would not consider housing five of the seven and permitting the other two or run at large. Dairymen know that if their animals are to be productive, they must have adequate living space.

In contrast, the same farmer, having but one poultry house, may pay little attention to the floor space per bird when he houses his pullets in the fall. If he complies with the government's request and raises 15 to 25 more pullets than is his usual custom, they are likely to be housed in the same building which was either just adequate for, or crowded with, a lesser number.

A single example serves to illustrate what will happen on many farms this coming year if 100 million extra chicks are brooded.A farmer has one 20 by 20 laying house which is large enough to accommodate 100 birds of a heavy breed.

However, if he rears 115 to 125 pullets this year, each pullet will have 3.4 to 3.2 square feet of space, which represents a 15 to 20 per cent reduction in space requirement.

It is obvious, therefore, that the increase in egg production can not be met efficiently, economically and soundly by increasing numbers of layers alone. Since mortality increases with crowding, and egg production decreases, additional emphasis must be placed on factors which will insure increased adult livability. On the other hand, unless additional chicks are brooded this spring, there may be an inadequate number of layers this fall.

## 2. Increasing Rate of Production

Important factors in increasing the rate of production include better breeding, adequate feeding, comfortable housing, and other management details. The length of time a laying hen lives, however, is the greatest single factor in its total egg production. Combined, these factors determine the total number of eggs a given poultry flock will produce.

## 3. Increasing Livability

Before giving this valuable weapon its proper place in this emergency, it is well to review what has happened to the poultry industry during the past quarter of a century.

In 1917, just prior to our entry into World War I, brooder-house mortality ranged from 20 to 40 per cent from the Allegheny to the Rocky Mountains. In 1915, just 27 years ago, a survey of brooder-house mortality of chicks up to 6 weeks of age, in one midwestern state, disclosed that 55 per cent of the chick population died. In New England and on the Pacific Coast the mortality was considerably lower, but these areas produced but a small percentage of the country's total.

In severe contrast, adult mortality in the Midwest was comparatively low, the logical result of the "survival of the fittest." Little thought was given to breed improvement in 1917; most chicks were hen hatched; a high percentage of farmers practiced "hit and miss" methods of feeding and housing. As a result, egg production was low.

The present brooder-house mortality in the United States is very low, and probably does not exceed 10 per cent up to 8 weeks of age. It is not uncommon now, even in the Midwest, for the hog farmer, the dairy farmer and the grain farmer to raise to 8 weeks 95 to 98 per cent of the chicks they purchase. This great downtrend of chick mortality is due to a great extent to the pullorum-disease-control program. Notably in the New England states, where the campaign for the control and eradication of this disease is a quarter of a century old, the present annual loss from pullorum disease is less than 1 per cent. In the Midwest it is estimated that, at present, less than 5 per cent of the chicks die from this disease. This is a remarkable improvement over an estimated loss of 25 per cent in 1917.

Adult mortality, however, has increased by leaps and bounds. In 1923, a Pacific Coast publication stated that the commercial poultryman lost 10 to 12 per cent of his adults annually, and that if his losses approximated 15 per cent, his year's profits were in jeopardy. The situation was comparatively the same throughout the length and breadth of the nation. Today, however, mortality studies disclose that the poultry farmer loses 30 to 40 per cent of his adult birds. One adult fowl has the

inventory value of 10 day-old chicks. Simple arithmetic discloses that the annual loss in inventory values alone, from adult mortality, approximates 150 million dollars. To this must be added the normal profit from these adult hens had they survived. It may be said, therefore, that the poultry industry is today staggering along with a millstone of a quarter of a billion dollars loss about its neck. Thus, it is obvious that poultry farming, instead of improving since 1917, has in some ways regressed.

To avoid entirely the poultryman's annual 30 to 40 per cent loss of his adult birds is an impossible, utopian dream. Yet, if it can be reduced by 10 points, more than one-half of Secretary Wickard's requested increase will be produced. A reduction of 18 points would more than produce the needed increase of 700 million dozen eggs. These figures are based on a minimum production of 10 dozen eggs per bird.

The best military strategy is to attack the enemy at its weakest point. An examination of the facts shows that a reduction of adult mortality from its present high rate is the speediest, most efficient and most worth-while method of increasing egg production in 1942.

Increased livability is accomplished through improving disease control, management, nutrition, and breeding.

As a recognized science, avian pathology is less than 25 years old. In the past two decades the geneticist, the biochemist and the husbandman have become familiar with the interlocking relationship of their respective fields with mortality.

Diseases such as pullorum disease, laryngotracheitis, fowl pox and omphalitis can be controlled, and parasites, including roundworms, lice and mites, no longer need be a menace to poultry health. If adequate nutrition is provided, rickets, curled-toe paralysis, perosis, dermatitis, and other avitaminoses can be prevented.

## Measures for Increasing Livability

It is recognized that few poultry diseases are prevented or controlled by specific drugs. It is further recognized that, since each individual has but little value as compared to other farm livestock, in most cases the flock must be considered as a unit. Since much of the losses can be prevented by adequate nutrition and capable management, veterinary practitioners should weigh these two factors carefully in making diagnoses and instituting treatment and since, in the field, it is usually impossible to diagnose differentially the several respiratory as well as other diseases, the services of diagnostic laboratories should be sought in verifying provisional diagnoses. Several typically affected live birds should be taken or sent by express to the laboratory. If only dead birds are available, suitable fresh speciments should be taken or shipped to the laboratory, well packed in ice.

As previously stated, the suggested measures comprise improvements in:

1. Disease control.
2. Management.
3. Nutrition.
4. Breeding.

## 1. DISEASE CONTROL

### General Control (Routine Sanitation)

**House:** Buildings and equipment should be cleaned and disinfected before brooding and housing. A disinfectant with a phenol coefficient of 3 or more should be used. The litter should be of absorbent material, 2 to 3 inches deep in the brooder house, 5 to 6 inches deep in the laying house. The windows and doors in the laying house should be screened.

**Range:** If movable, the brooder house should be moved to clean range. Ground where no chickens or turkeys have ranged for the past two years should be used. All available range should be equally divided into three sections to make the three-year rotation plan effective. If clean range is not available, sun porches should be used.

### Specific Control

**Parasitic Diseases (Mites, Lice, Roundworms):** The appearance of mites can be prevented by an annual house cleaning and spraying with any heavy oil. In some cases, spraying to control mites should be practiced twice a year. Excluding sparrows from poultry buildings is one method of preventing reinfestation.

Nicotine preparations are specific in eliminating lice. They are applied by painting roost surfaces. The application should be repeated in 10 to 14 days to destroy the newly hatched. Following roost painting, all birds must be on the roosts to prevent immediate reinfestation.

Regular examination of casualties should be followed. If roundworms are discovered, a highly efficient, nontoxic roundworm tablet should be administered individually, or the same active ingredient administered to the flock in suitable dosage by way of the mash. The litter should be changed two days later.

**Virus Diseases (Fowl Pox and Laryngotracheitis):** In localities where fowl pox has been reported, routine vaccination should be practiced. Fowl-pox vaccine (chicken strain) should be employed and the birds vaccinated between the ages of 6 and 10 weeks. The brood should be free from colds, coccidiosis, and worms. If these diseases are present, they should be controlled before the birds are vaccinated.

If the cockerels are to be marketed as broilers, they need not be vaccinated, but should be separated from the pullets at an early age (4 to 8 weeks) and housed or ranged separately. If this is not possible, vaccination should be postponed until the cockerels are marketed at 10½ to 12 weeks of age.

If the disease occurs in an unvaccinated laying flock, the noninfected birds should be vaccinated at once with fowl-pox vaccine (pigeon strain). In each case the directions of the manufacturer should be followed carefully.

Where laryngotracheitis has been reported, routine vaccination should be practiced between 8 and 16 weeks of age. If the disease occurs in an unvaccinated flock and is identified within 48 hours of its occurrence, the noninfected birds should be vaccinated at once.

**Bacterial Diseases (Pullorum Disease and Omphalitis):** In pullorum disease, blood testing must be continued vigorously to maintain and improve chick livability and egg production. If the rapid whole blood method is employed routinely, the standard tube agglutination test should be employed before the flock is considered "clean."

Routine hatchery sanitation will prevent omphalitis.

### Nonspecific Control

The veterinarian should accept the fact that there are no specific measures to prevent or control such diseases as fowl paralysis, tuberculosis, fowl cholera, fowl typhoid, infectious colds, tapeworms, coccidiosis, and chick bronchitis. During the past decade, however, research has disclosed many practical methods of reducing losses from these diseases. It is apparent that much of this information is not being put into practice. In reducing losses from these diseases, for which there is no specific prevention or control, the veterinarian should utilize the following facts.

**Fowl Paralysis and Related Diseases:** Careful culling to eliminate clinical cases from the breeding flock may aid in lowering the death rate from this disease in succeeding generations.

**Tuberculosis:** Surveys by the U. S. Bureau of Animal Industry disclose a high percentage of infected birds in the Central and North Central States. In these areas, farmers suffer losses in both poultry and swine, which become infected with the avian strain of the organism. Prescribed methods to prevent these losses are already available. The local practitioner should consult a federal field veterinarian, inspector in charge or state veterinarian before putting control measures into effect.

**Coryza (Infectious Colds):** As in human beings, no specific methods of "curing" colds are known, but much can be done toward preventing losses in both birds and egg production. The following outline will serve as a guide.

a. The cause is Hemophilus gallinarum, not drafty houses, wet litter and internal parasites, as previously believed, although all of these factors increase the susceptibility of the flock to the disease, prolong its course, and increase losses.

b. The acute, uncomplicated form lasts but a few days; the chronic, for several weeks.

c. Coryza seldom attacks brooder-house chicks. Attention should be focused on the growing pullets and laying hens. An examination should be made for external and internal parasites. When these have been excluded or controlled, the principal treatment is to encourage the greatest possible food intake, since birds infected with coryza rapidly lose weight and egg production, largely because they have little inclination to eat. Appetites are stimulated through the use of half-day feedings of a dried cheese whey flushing mash at two to three-day intervals, or wet mashes, or some form of liquid milk, daily. During the fly season, liquid milks or wet mashes should be fed in separate containers, which, after feeding, should be cleaned carefully and left in the sun to dry.

d. Mixed bacterins and pharmaceutical preparations, with the exception of sulfathiazole, have been found to be of little value in preventing or controlling infectious colds.

e. Since recovered birds remain carriers for many months, noninfected pullets should not be ranged or housed with older birds.

**Tapeworms:** Because of the natural attachment of these parasites to the intestinal wall of infested birds, little advance has been made in developing satisfactory medication to expel these vicious pests. Proper measures for controlling flies and other insects will prevent many unnecessary losses, however.

During the fly season, the feeding of wet mashes and liquid milks should be discouraged; if practiced, however, separate feeders should be used, as directed in the control of coryza.

The droppings should be treated at frequent intervals with a fine sprinkling of gypsum or superphosphate, both of which interrupt fly breeding. Lime may be used, but this destroys much of the value of the droppings as fertilizer. Droppings should be removed at frequent intervals and, if not used immediately as fertilizer, should be stored in a fly-proof manure pit or building, or moved a considerable distance from the poultry buildings.

In the poultry yard, boards, flat stones and trash should be removed, as these provide moist places for other insects which are also intermediate hosts of tapeworms. Under no circumstances should chickens be permitted access to other farm buildings or manure piles.

**Coccidiosis:** This disease continues to exact a tremendous annual toll. Although much has been learned in the last decade which, when put into practice, is of material assistance in preventing the disease or, if it appears, in keeping the losses at a minimum, there is no specific drug which will cure it. Proper nursing and adequate nutrition should be instituted immediately upon making a diagnosis of coccidiosis. Coccidiosis is no exception to the rule of the thumb that "more chickens starve to death than die from disease."

In the brooder house, provided most of the chicks become infected at or about the same time, the disease may last but a few days following the appearance of symptoms. Since there is no cure for coccidiosis, attention should be focused upon factors which will encourage maximum feed consumption during the attack. A moderate, often unnoticed infection produces protection against mass doses at a later date. If large numbers of oocysts are consumed by susceptible birds, many will succumb from hemorrhage five to seven days later.

Under average farm conditions, the majority of those affected consume sufficient coccidia to become depressed; their appetites wane and progressive emaciation occurs, followed by death.

Appetites are whetted as in the manner prescribed under coryza. Three or four feedings of a dried cheese whey mash on alternate days, in place of the regular mash, will save many birds. Deep litter tends to decrease the spread of infection through the droppings. However, the day following the first flush, the litter should be changed.

Coccidiosis may be a devastating disease in the pullet or laying flock. Usually some part of the small intestine is involved. Seriously affected individuals should be confined separately, or destroyed and burned or deeply buried. Adequate nutrition and nursing should be relied upon for keeping losses at a minimum.

**Infectious Bronchitis:** This disease is rapidly assuming a devastating role in chicken mortality, particularly in the Midwest. There is no specific cure for this disease. Often the mortality is insignificant except in chicks under 4 weeks old. Here again, routine sanitation, adequate nutrition, and good nursing are the principal factors in keeping mortality at a low level.

## 2. MANAGEMENT

Good management is the result of attention to details. Since it is more economical to prevent disease than to control it, the following management schedule assures proved economies. Its application will do much toward increasing livability, and egg production.

### Housing Layers

Houses and equipment should be cleaned and disinfected. Pullets should be confined when 5 to 5½ months of age. If birds are housed during warm weather, they should not be permitted out of doors until

As previously stated, the suggested measures comprise improvements in:

1. Disease control.
2. Management.
3. Nutrition.
4. Breeding.

## 1. DISEASE CONTROL

### General Control (Routine Sanitation)

**House:** Buildings and equipment should be cleaned and disinfected before brooding and housing. A disinfectant with a phenol coefficient of 3 or more should be used. The litter should be of absorbent material, 2 to 3 inches deep in the brooder house, 5 to 6 inches deep in the laying house. The windows and doors in the laying house should be screened.

**Range:** If movable, the brooder house should be moved to clean range. Ground where no chickens or turkeys have ranged for the past two years should be used. All available range should be equally divided into three sections to make the three-year rotation plan effective. If clean range is not available, sun porches should be used.

### Specific Control

**Parasitic Diseases (Mites, Lice, Roundworms):** The appearance of mites can be prevented by an annual house cleaning and spraying with any heavy oil. In some cases, spraying to control mites should be practiced twice a year. Excluding sparrows from poultry buildings is one method of preventing reinfestation.

Nicotine preparations are specific in eliminating lice. They are applied by painting roost surfaces. The application should be repeated in 10 to 14 days to destroy the newly hatched. Following roost painting all birds must be on the roosts to prevent immediate reinfestation.

Regular examination of casualties should be followed. If roundworms are discovered, a highly efficient nontoxic roundworm tablet should be administered individually, or the same active ingredient administered to the flock in suitable dosage by way of the mash. The litter should be changed two days later.

**Virus Diseases (Fowl Pox and Laryngotracheitis):** In localities where fowl pox has been reported routine vaccination should be practiced. Fowl-pox vaccine (chicken strain) should be employed and the birds vaccinated between the ages of 6 and 10 weeks. The brood should be free from colds, coccidiosis, and worms. If these diseases are present they should be controlled before the birds are vaccinated.

If the cockerels are to be marketed as broilers, they need not be vaccinated, but should be separated from the pullets at an early age (4 to 8 weeks) and housed or ranged separately. If this is not possible, vaccination should be postponed until the cockerels are marketed at 10½ to 12 weeks of age.

If the disease occurs in an unvaccinated laying flock, the noninfected birds should be vaccinated at once with fowl-pox vaccine (pigeon strain). In each case the directions of the manufacturer should be followed carefully.

Where laryngotracheitis has been reported, routine vaccination should be practiced between 8 and 16 weeks of age. If the disease occurs in an unvaccinated flock and is identified within 48 hours of its occurrence, the noninfected birds should be vaccinated at once.

**Bacterial Diseases (Pullorum Disease and Omphalitis):** In pullorum disease, blood testing must be continued vigorously to maintain and improve chick livability and egg production. If the rapid whole blood method is employed routinely, the standard tube agglutination test should be employed before the flock is considered "clean."

Routine hatchery sanitation will prevent omphalitis.

### Nonspecific Control

The veterinarian should accept the fact that there are no specific measures to prevent or control such diseases as fowl paralysis, tuberculosis, fowl cholera, fowl typhoid, infectious colds, tapeworms, coccidiosis, and chick bronchitis. During the past decade, however, research has disclosed many practical methods of reducing losses from these diseases. It is apparent that much of this information is not being put into practice. In reducing losses from these diseases, for which there is no specific prevention or control, the veterinarian should utilize the following facts.

**Fowl Paralysis and Related Diseases:** Careful culling to eliminate clinical cases from the breeding flock may aid in lowering the death rate from this disease in succeeding generations.

**Tuberculosis:** Surveys by the U. S. Bureau of Animal Industry disclose a high percentage of infected birds in the Central and North Central States. In these areas, farmers suffer losses in both poultry and swine, which become infected with the avian strain of the organism. Prescribed methods to prevent these losses are already available. The local practitioner should consult a federal field veterinarian, inspector in charge or state veterinarian before putting control measures into effect.

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### Housing Layers

Houses and equipment should be cleaned and disinfected. Pullets should be confined when 5 to 5½ months of age. If birds are housed during warm weather, they should not be permitted out of doors until

2 p.m. Birds of different ages should be housed separately.

**Litter:** Depth of the litter should be increased gradually until it reaches 5 to 6 inches by the end of November. Deep litter assures warm floors, saves labor, and tends to minimize the danger from infected droppings. Years of experience in New England and in other states have proved the safety and economy of this measure.

In the absence of an infectious disease, litter should be stirred frequently, wet areas removed, and new litter added, but the entire litter should not be replaced during cold weather.

If a shallow litter is used, it should be changed at intervals of one month.

Absorbent materials such as coarsely ground corn cobs, shavings, shredded corn stalks, or any satisfactory commercial litter, should be used. Available litter may be mixed with straw, but straw alone is not desirable.

**Roosts:** Nine inches should be allowed for each bird. Either protected droppings board or manure pit should be used.

**Feed Hoppers:** A minimum of three 5-foot mash hoppers for each 100 birds should be provided. Hoppers should be placed at right angles to incoming light, not parallel to the south side. They should be placed on platforms of heavy wire or wooden slats.

**Waterers:** Fountains or troughs of 5 to 8-gallon capacity should be provided for each 100 birds and placed near mash hoppers, on platforms. In cold weather, warm water should be provided.

**Nests:** One nest should be provided for each five birds. Clean litter, such as shavings or straw, should be used. Nests should be placed in the darkest part of the room.

**Light:** Large, clean windows are important, especially on the south and north sides. During fall and winter months, artificial light should be provided to give the layers a 13 to 14-hour day. If electricity is available, 1 watt should be used for each 5 square feet of floor space. Bulbs should be provided with reflectors.

**Ventilation:** Proper intake of fresh air and outgo of foul air, without drafts, should be provided.

**Heat:** In localities where excessive cold weather is common, stove heat may be furnished.

**The Barracks Plan:** On farms where but one laying house is available, it is a common practice to dispose of the laying birds at the end of the first year of production to make room for the young pullets. However, many times the older birds are still in good production, and one to two additional months of profitable egg production may be obtained by employing the "barracks plan," instead of marketing the older birds. For the duration of the emergency, it is recommended that this plan be adopted to save needed egg production. A range shelter about the size of the laying house is constructed. The shelter should have a solid roof and should be completely enclosed with wire. The furnishings should include nests, feed hoppers, waterers and roosts protected from the droppings by wire.

### Culling

**When:** When pullets leave the brooder house at ranging time; when they are housed, at 5 to 5½ months of age; at economic intervals during the laying season.

**How:** Healthy non-layers should be marketed at economic intervals, according to the size of the flocks; birds which appear out of condition or undersized should be isolated; diseased culls should be killed and burned or deeply buried.

## 3. NUTRITION

For many years the poultryman has thought in terms of minimum feed requirements. It is recognized today that everything should be done to encourage the highest possible feed intake, since this means not only increased egg production, but also a better rate of growth and greater resistance against disease. Scientists agree that more is known about the scientific feeding of chickens than mammals, including humans. There is a sharp contrast between our present knowledge of poultry nutrition and that of a few years ago. Principal nutrition factors which influence poultry profits are: adequate daily feed intake, ingredient quality, vitamin content of the feed and ratio of mash to grain.

### Adequate Daily Feed Intake

Heavy breeds require more than 96 pounds of feed a year to support the body requirements and a 50 per cent egg production of a hen. Leghorns require from 85 to 90 pounds. This amount is 15 to 20 pounds more than was thought to be necessary a few years ago. Many high producing flocks of heavy breeds consume daily 36 to 38 pounds of total feed per 100 birds, an amount nearly double that considered to be necessary in the past.

### Ingredient Quality

Experiment stations urge poultry farmers to feed materials of high quality, since formula alone is not enough. The present emergency precludes the securing of certain poultry-feed ingredients of high quality; therefore, care must be exercised in making purchases.

### Vitamin Content of Feedstuffs

In contrast to a decade ago, many

vitamin requirements of the hen now are known. Modern chemistry has disclosed methods of determining the quantitative vitamin content of important ingredients.

Although nondegerminated farm grains contain many vitamins necessary to maintain health, growth, and egg production, both profitable layers and breeders need relatively large quantities of vitamins A, D, and riboflavin, which are not present in farm grains, with the possible exception of good alfalfa and yellow corn. These three important vitamins command a premium on today's market, and the good poultryman is as much concerned with knowing that his feeds contain these vitamins in adequate amounts as that they contain adequate proteins, carbohydrates and fats.

### Ratio of Mash to Grain

Fall and early winter eggs command high prices because this production is recognized as out-of-season laying.

Most authorities agree that the protein content of a laying and/or breeding mash should be 20 per cent. A hen laying 50 per cent for the year should consume about 48 pounds of a high quality, 20 per cent protein mash and 48 pounds of grain. This provides a daily diet of about 15 per cent protein. It has been found that to support normal growth gains and egg production from September to February, the protein intake must be in excess of that normally consumed when layers are offered mash and grain free choice. The hand feeding of grain usually prevents loss of body weight and the resulting loss of production which often is followed by a molt.

## 4. BREEDING

In projecting family mortality, avian geneticists are in agreement that livability tables are about as significant in poultry as in humans. Investigations disclose the comparative inherited resistance of high and low susceptibles in such diseases as pullorum disease and fowl typhoid. Preliminary observations tend to corroborate the thesis that losses from fowl paralysis may be reduced by using as breeders only mature birds within a given flock. Routine autopsies at egg-laying contests disclose that much of the mortality results from nonspecific causes. Such evidence further suggests the desirability of using effectively our knowledge of breeding for better adult livability.

While increased adult livability through breeding is demonstrable, it is not an immediately effective weapon. It must, however, take its proper place in the present program, since its benefits will be reflected in succeeding years.

# Selective Service for Hens

Today it's the patriotic duty of every poultryman to keep the slackers weeded out of his flock. Hens that don't lay enough to pay for their feed have no place in wartime economy. If marketed in good condition, they add to the nation's meat supply and precious poultry feed is conserved for better birds.

A happy result of this form of "selective service" is that the poultryman's own profits are increased. We wouldn't be surprised if, eventually, consistent and thorough culling of poultry flocks was made compulsory.

We say "compulsory" because in the past all too many poultrymen have seriously neglected the art and science of culling by external characteristics. A fairly good job can be done without the aid of trapnest records.

Strictly speaking, there never need be failures in the chicken business if the unprofitable individuals were always eliminated. But how many poultrymen will try to do this? How many are satisfied with a dollar a hen annual profit when they might just as easily make a dollar and a half or two dollars?

The problem is not only to try but how to succeed. Culling should commence the first day of the chick's life. If your hatcheryman, by chance, has included in your order a few chicks that are weak or small or inactive, tell him about it and get a refund, but don't put them in the brooder. Look the flock over daily. Promptly remove any unthrifty or slow growing chicks. Don't expect to accomplish anything by putting feed into runts, which almost always remain runts.

The fastest growing and earliest maturing pullets within a strain almost always make the best layers. The trapnest has shown this. During the growing period, watch out for any signs of unthriftiness or poor health.

When the day comes to move the budding egg producers to the laying house, remember that your decision as to which pullets to keep and which to cull is mighty important to your pocketbook.

Good stock should always represent a fair amount of uniformity, but even so, with present high feed prices you will be on the safe side by eliminating the last 10 per cent of the pullets that start to lay. Some stock may need a heavier culling than this, others less. Don't try to set any records in per cent of pullets housed to chickens brooded. When a man states that he put 500 day-old pullet chicks in the brooder and housed 475 mature pullets, he is simply announcing that he is either "chicken-hearted" or very awkward with a catching hook.

—Copyright, 1942, Dryden Poultry Bulletin, March, 1942.

# An Emergency Poultry Program

To help poultrymen do their part in the Food for Victory campaign, with as much assurance as possible that no loss and some profit may result, the following program is suggested:

1. Make definite plans. Expand only by remodeling or by making a relatively small financial outlay for buildings and equipment. Try to improve the efficiency of the farm with labor-saving devices and laying shelters.

2. Confine expansion in numbers of birds principally to those for producing eggs rather than meat. There will be enough of a problem disposing of the cockerels and fowl, which are by-products of the expansion program. If equipment is constructed for producing broilers, build such structures as can be easily converted to laying houses if, at a later date, it seems desirable to do so.

3. Get good stock. Feed good rations. Use better feeding methods and management that is as economical as possible, yet consistent with housing and labor efficiency. Consider lessening production costs by using waste-proof hoppers and by ranging growing pullets on good grass range.

4. Store a month's supply of feed on the farm in a rat and mouse-proof ventilated building so that a transportation tie-up will not result in an insufficient amount of feed on hand to meet normal needs.

5. Anticipate any possibility of labor shortage on your farm by arranging for help with neighbors, high school students, preparatory school students, or women to replace able-bodied men who sooner or later will probably go to the army. However, do not hesitate to ask for recognition of poultry keeping as an essential industry or for deferment for an essential employee.

6. Keep advised on research results especially when greater efficiency of production may result. Never before has it been so important for poultrymen to be prepared to make adjustments easily and rapidly to changing conditions.

7. Keep close to organizations, within your state and region especially, which can be of value in constructively criticizing those in control of agriculture. Fault-finding will only make matters worse, but sound advice is needed and usually is appreciated.

—Raymond T. Parkhurst, Featheredfax, March, 1942.

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↞ CORNBELT HATCHERIES, Watseka, Ill., allows 5 cents credit, redeemable in Defense Stamps, for each Corn Belt chick box and feed bag which a customer returns, according to Hatchery Tribune.

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# WAR AND THE POULTRY RAISER

## Used Egg Case Shortage

Eastern egg producers began to experience a serious shortage in egg cases in March, some poultry raisers reporting that they had no cases whatever with which to ship eggs on hand. Country egg buyers taking eggs into New York, Philadelphia, Baltimore, and other cities frequently come back without any cases.

Several factors have contributed to the shortage of used cases which eastern producers have always used to pack their eggs. Heavy government buying of eggs in the Midwest decreased the number of new cases shipped to eastern markets. Drying plants in the Midwest now return their empties to producers, while truckers bringing eggs from the South to eastern drying plants make it a point to take back a load of empty cases in order to have a payload on the return trip. Moreover, they have shown a willingness to pay prices well above the ceiling established by the Office of Price Administration on February 23.

The movement of eggs into storage in March was greatly above a year ago, drying plant operators storing one case out of every three purchased in order to maintain continuous operation of their plants when supplies become short later in the year. This had tied up thousands of cases.

Still an important source of egg case waste is the Army. While the quartermaster general has instructed the camps to take better care of cases, its requests for bids do not indicate the condition of the cases, and the prospective buyer may find upon his arrival at a camp that the cases may not contain flats or fillers and may have suffered considerable damage by weathering.

While the sale of new cases has declined over a period of years because of wider use of second-hand cases, manufacturing facilities for turning out new cases at this time are ample. One concern was without stitching wire, which it uses for fastening the cleats to the ends, for about 18 working days. It was entirely without egg case nails early in April, although it had been contacting defense agencies in Washington for a month on this particular problem.

Individual poultry raisers report that nails cannot be obtained locally and are finding it necessary for the first time to save and straighten bent nails.

To prevent some of the destruction which is occurring in retail stores, the National Association of Food Chains is calling attention of its members to the problem and is sending out instructions on egg case conservation supplied by Everybodys Poultry Magazine.

There is much room for improvement in the way producers themselves take care of their cases. Carelessness in removing of lids, the use of lids for starting fires, and exposure of fillers and flats to rat damage are responsible for considerable loss.

A likely outgrowth of the case shortage may be the use of new cases by eastern cooperatives which have been accustomed to using second hand cases exclusively. In a few weeks, several egg auctions will be using new cases for their larger, better quality eggs exclusively.

## Egg Case Ceiling Ignored

A checkup with egg buyers in the area immediately surrounding the publication office of the Poultry Digest revealed that a month after the Office of Price Administration had established its ceiling prices on used egg cases on February 23, not much attention was being paid to the schedule, nor had there been any attempt to enforce it.

Country buyers and egg haulers were paying as high as 30 cents to get cases on which OPA had set a top price of 22 cents, and the poorest kind of cases, which should not have brought more than 1 cents under the OPA schedule, were being sold for 22 cents.

One stunt of case dealers was to bill the buyer at the 22-cent price, then add a service charge of from 3 to 10 cents. In another instance uncovered, the bill of sale showed 225 cases at 22 cents, but only 200 cases were loaded on the truck. While cases have been short, they seem to have gone to the buyers willing to pay most.

In hearings held by OPA in New York and Chicago on March 23 and 24, dealers complained that retailers were holding them up on the cases, charging more than usual. OPA is planning, therefore, to issue a new price schedule which will break down the price for each phase of handling from the retailer until the case leaves the dealer.

## Eggs Form Large Part of Expanded Food Purchases by Government

Of the more than 800 million dollars worth of farm products bought by the Agricultural Marketing Administration during the first year of its expanded purchase program, March 15, 1941 to March 15, 1942, a total of $118,794,366 went for the purchase of dried, frozen, and shell eggs, it was revealed in a summary issued by the U. S. Department of Agriculture on March 30.

These purchases were largely for shipment to United Nations under the Lend-Lease Act, but they also included supplies for the Red Cross, for territorial programs, for school lunches, and for relief.

Purchases of eggs were divided as follows:

| | Pounds | Cost |
|---|---|---|
| Dried Eggs | 80,965,050 | $86,741,014 |
| Frozen Eggs | 66,189,370 | $16,045,442 |
| Shell Eggs | 86,955,390 | $16,008,910 |

The only food group exceeding eggs in value of purchases was pork products. In addition to eggs, purchases of poultry products included $6,537,277 worth of canned chicken, and $1,400,475 worth of canned turkey.

## Meat Scrap Ceiling Lowered

Maximum prices for meat scraps, established on January 20, were lowered $5 a ton on March 26 by action of the Office of Price Administration. A reduction of $6 a ton was made on digester tankage, while maximum prices on fish meal, which has become scarce because of curtailed fishing activity, remains at the level set in January.

OPA will continue to make studies on animal feedingstuff prices with the aim of setting up a permanent schedule of maximum prices. Prices for meat scraps and tankage on January 20, when the temporary ceiling price had gone into effect, represented an increase of $6 and $7 a ton over the level which prevailed in early October of 1941.

While the operation of the price ceiling on meat products has saved poultry raisers many dollars, and further savings will result from this recent reduction in prices, the ceiling order has had the effect of cutting off the production of especially high quality meat scraps.

One manufacturer who had been accustomed to paying premium prices for meat scraps with a protein level of 55 to 57 per cent and definite levels of calcium and phosphorus, a definite iodine content, and a low fat analysis, was informed by his supplier that the price ceiling would not be sufficient to turn out the high quality product. The protein level was reduced, but the calcium and phosphorus content was higher. To get the minerals in proper relationship, it was necessary to remove some of the meat scraps and substitute vegetable proteins.

## Government Feed Wheat

Some 19,800,000 bushels of feed wheat have been released by the Commodity Credit Corporation since this program was started several months ago. While wheat is only one ingredient in poultry feed mixtures, the release of this wheat by the government at less than current market prices has meant some savings to poultry raisers.

Legislation passed by the House and the Senate, however, aims to prevent the release of wheat, corn, and cotton at prices that are less than parity. Secretary of Agriculture Wickard's great concern is to find space for storing the 1942 wheat crop, for he estimates that our wheat supply next summer will be sufficient to take care of our requirements for two years.

In anticipation of the legislation being enacted, Hobart Creighton, chairman of the National Poultry Defense Committee, says that a stock of this wheat is desirable in communities where a large amount of poultry is kept. He suggests that anyone interested in the purchase of this wheat contact the county agricultural agent.

Under the program, whole wheat (ungraded) is offered at the lower of (1) the Commodity Credit Corporation's sales price for corn at the point of destination less 4 cents or (2) the 1941 wheat loan value at point of destination plus 1 cent per bushel beginning March 1, 1942, except no sales of whole wheat will be made at a delivered price of less than 86 cents per bushel unless it is wheat stored in the county and the 1941 wheat loan value in such county is less than 86 cents.

### Vitamin A Order Being Revised

The War Production Board's order (L-40) which prohibited the manufacture of feeds containing more than 1,000 units of vitamin A derived from fish and fish liver oils per pound of commercial feed, is said to be undergoing revision. The order was to have gone into effect April 10.

### Cautions Against Deficiency of Vitamin A in Stored Corn

A University of Illinois animal husbandry specialist last month warned against feeding of corn that had been stored more than two years in government steel bins. Chemical analysis has shown that such yellow corn contains only half as much vitamin A as corn that is one year old or less.

### Maximum Prices for Used Bags

The Office of Price Administration has issued Maximum Price Regulation No. 55 covering the prices at which used cloth bags of all kinds may be sold. The previous schedule froze used bag prices at those which were paid from October 1 to October 15, 1941, but the new schedule sets maximum prices at which unprocessed and processed bags of burlap and cotton may be sold.

On processed burlap bags, the schedule ranges from 9 cents to 26.9 cents per bag, depending upon size. The range on processed cotton bags is from 10 to 23.3 cents.

In many instances, producers will get less for their bags under this schedule. Whether it will result in less care being given to bags on farms remains to be seen. Some of the feed companies were paying as high as 15 cents each for the return of burlap bags. Under the new schedule, the rate will average around 9 or 10 cents.

### Chick Convention Location Moved

Most of the International Baby Chick Association's 25 annual conventions have been held in the upper Mississippi valley or north central states in order to be near most of the nation's hatcherymen and hatching capacity. When the association decided last year that it would hold its 1942 convention in New Orleans, many hatcherymen and their families were looking forward to visiting this picturesque city.

Hopes were dashed, however, when the Army took over the New Orleans Auditorium. Directors of the I. B. C. A., after considering the invitations of several cities, on March 14 decided to move the 1942 convention to Grand Rapids, Michigan, the dates remaining July 21 to 24 as before.

The Kansas City Auditorium, scene of last year's successful I. B. C. A. convention, has been taken over by the Farm Credit Administration which moved from Washington and insisted upon having an air-cooled building.

Another event not likely to be staged next year is the Pennsylvania Farm Show at Harrisburg, largest indoor agricultural fair in the country. Its building has been taken over by the Army.

### From Autos to Feed

Many auto dealers who have been casting about for other sources of income since the War Production Board stopped all manufacture of passenger cars are now in the feed business. One feed company held regional meetings to which it invited auto dealers and presented the opportunities offered by feed selling during the war. Another feed concern used an automotive trade paper to tell its story.

Not all the auto dealers who go into feed retailing will be able to get sufficient turnover to make it profitable, but in many localities, manufacturers have succeeded in opening up distribution where they have never had it before. In others, they have taken the franchise away from dealers who have been in the habit of waiting for business to come to them and transferred it to auto dealers who have generally had to go out and make sales.

### Farm Help

Lack of trained farm help is becoming more acute. Commercial poultrymen who have been able to hold their men over a long period of years now find it difficult to meet the competition of high wages offered in various industries doing defense work. Loss of help to industry is the main cause of the farm help shortage, for the 40-hour week at high hourly rates, and time-and-a-half for overtime have a lot more appeal than farm wages and long hours.

While Selective Service headquarters have instructed local draft boards to give every consideration to the needs of farm help, the need for men for the army is so great that there is no uniformity as to the deferment of farm help.

Secretary of Agriculture Wickard on March 13 instructed the state and county U. S. D. A. war boards to cooperate with the U. S. Employment Service in setting up machinery for the registration of all available farm help, unemployed farm workers and members of their families available for farm work, those available for part-time work, school youth, women, and others.

In New York state, a new law permits school children of 14 years of age and older to be released up to 30 days during one school year to help with planting and harvesting.

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## Green Yolks from Little Acorns Grow

Acorns and probably some other materials, but not green grass, are the cause of the so-called "grass eggs" that chickens occasionally lay, says the U. S. Department of Agriculture.

The yolks of such eggs vary in color from a greenish yellow to a greenish brown. The color was believed to result from eating quantities of green grass and certain green plants. This belief was widely held more than 20 years, until recent feeding tests at several state experiment stations and the Beltsville Research Center of the Department of Agriculture supplied good evidence that field penny-cress, shepherds-purse, and green cereal grass, when eaten by chickens, do not color the yolks of the eggs. When the chickens have access to acorns of the white or black oak, however, the yolks of the eggs they lay tend to be olive-colored.

The government investigators fed several selected groups of hens different diets containing varying quantities of ground acorn kernels, ground hulls, and ground whole acorns. All these diets produced "grass eggs" of varying shades after the fourth or fifth day of feeding. The diet with 50 per cent of ground acorn kernels caused the hens to produce the darkest colored egg yolks, indicating that acorn kernels have the most effect. Acorn kernels also seem to affect hatchability adversely, when eaten in quantity, the investigators say.

—U. S. D. A. News Release, March 22, 1942.

## Women on Poultry Farms

Before the war is over, it is almost certain that women will have to do a part of the work on poultry farms. The head of the selective service of New England recently predicted that industry would have to employ no less than 30 per cent women. Such a condition cannot exist in industry without being reflected on the farm.

Much of the poultry work has always been done by women on general farms. It is only on commercial farms where men do most of the poultry work. Even on commercial plants, there are instances where women have found a place in poultry farming. In New England particularly there is little chance of continuing to give the nation the eggs that have been asked of us without the help of women, older men, and boys.

Women who have been accustomed to farm work will be particularly valuable in our war production program. Except for the cleaning of the houses, the carrying of feed, and moving of brooder houses and equipment, there is little of the work that they cannot do.

Cleaning and grading of eggs is the first job that women can take over. The traying of hatching eggs as well as the taking off of the hatch and cleaning of trays is also on their list. The brooding work and the feeding can be taken over providing there is storage space for feed nearby. The gathering of eggs, pedigreeing of chicks and in fact all of the work except the very heaviest of it can, if need be, handled by women.

It is not likely that we will see a "farmerette" movement during the war. Those who will be most valuable are the farm raised women with experience. It is possible that a 6 weeks summer course will be given at Massachusetts State College for the training of women in poultry work. It will be the purpose of this to train them to avoid some of the most glaring mistakes that might be disastrous to the industry. They cannot be expected to become managers in so short a period of training.

—G. T. Klein, Featheredfax, February, 1942.

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COMPLAINTS about chickens arriving in bad condition are 5,000 years old. A produce dealer of Babylon claimed that a shipment of chickens from Nineveh arrived in bad condition, according to a baked clay tablet recently unearthed at Babylon.
—South African Poultry, Pigeon, and Bird Magazine, February, 1942.

# Better Quality Eggs for Defense

By CARL O. DOSSIN
Penn State College

*Reprinted from Everybodys Poultry Magazine*

PATRIOTIC poultry raisers are answering the government's call for increased egg production by producing better eggs as well as more eggs. More than 5 per cent of the eggs laid are wasted because of improper handling somewhere between the hen and the housewife. By eliminating this waste, more than a third of the asked-for increase would be met.

The production of quality eggs has been stressed in Pennsylvania for several years. The following practices have been emphasized as being important in the production of quality eggs:

1. Keep birds confined.
2. Maintain a temperature of 65° in the egg cellar.
3. Maintain a relative humidity of 75 per cent in the egg cellar.
4. Pre-cool egg cases.
5. Gather eggs at least three times daily.
6. Cool eggs quickly.
7. Pack eggs daily.
8. Market eggs twice a week.

In addition to the practices suggested, a sound poultry feeding and management program should be followed. Clean nesting material, clean dry litter, screened perches on the droppings board and narrow perches on feeders, nests, and drinking fountains are factors in the production of clean eggs. Feeding an adequate amount of shell-forming material and some source of vitamin D are essential to the production of eggs with sound shells. The males should be moved from the laying flock at the close of the breeding season.

## Summary of Quality Program

To learn the effectiveness of the quality egg program, visits were made to 81 Pennsylvania farms consigning eggs to the egg auction during the past year. It must be remembered that only 100 eggs in each case sold at the auction are inspected and a 10 per cent tolerance of eggs in the next lower grade is permitted. When gathering the information used in this summary, the percentage of fancies was taken for the two sales previous to the time of the visit, for it was felt that this would give a better picture of the results obtained under the conditions which existed at the time of the visit.

The following summary shows that each step in the program is important and production of a high percentage of fancies is dependent upon following the entire program. It is clearly illustrated that the more practices you neglect, the lower your eggs will grade.

| | No. of Farms | Per Cent Fancy |
|---|---|---|
| Followed all practices | 4 | 98.75 |
| Neglected 1 practice | 16 | 95.4 |
| Neglected 2 practices | 28 | 52.3 |
| Neglected 3 practices | 16 | 39.4 |
| Neglected 4 practices | 12 | 19.0 |
| Neglected 5 practices | 5 | 4.0 |

If there were to be any change made in this program, it would be in the order of which the various steps are listed. Gathering eggs three times daily would be emphasized as most important. An egg is never better than when it is laid. Egg quality will decrease rapidly in the nest unless the eggs are gathered frequently in warm weather.

## Gather Eggs Three Times Daily

Gathering eggs at least three times daily is one of the most important steps necessary in maintaining egg quality. Many more fancies were found where this was done, but it is a worthwhile practice from the standpoint of reducing the number of soiled and broken eggs alone.

A fertile egg starts to develop at about 68° F., so eggs should be held at a temperature below this point. Another reason for advocating a temperature under 65° is that molds do not develop as rapidly at low temperatures. Eggs held at too low temperatures will sweat when brought into a warmer atmosphere.

To maintain a temperature below 65° in the egg room during the summer usually requires that the cellar be constructed as much as possible below ground, with either a building or heavy coating of earth over it. The windows should be shaded by planting shrubbery in front of them.

A temperature under 45° is too low because of the difficulty in maintaining satisfactory humidity.

## 75 Per Cent Humidity in Cellar

A relative humidity in the egg room of 75 per cent is important if the eggs are to look right under the candle. Observations on Pennsylvania farms indicate that if the correct temperature is maintained and the entire program followed, there is no need of having extremely high humidity. Those farms maintaining a temperature between 50° and 60° in their egg rooms made a high percentage of fancies even though the relative humidity approximated 70 per cent.

Whenever relatively high humidity is maintained, the danger from molds is increased. Observations in the field indicate that the mold problem is more acute where earth floors are used in the egg rooms than when concrete, stone, or brick floors are used. The indications are that the use of a small house fan to circulate the air in the egg room will help to eliminate the mold problem. The fan will also help to remove animal heat from the eggs.

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(Everybodys Poultry Magazine, April, 1942)

In the summer when it may be cooler outside than it is inside, the window in the egg room should be open. The lowest possible temperature that can be obtained in the summer will help to eliminate this problem.

The care of empty egg cases is a definite factor in preventing the mold problem. Only a one to two day supply of empty cases should be held in the egg room before they are used. The main supply of empty cases should be held in a clean dry room.

### Better Eggs in Rainy Weather

It started to rain April 11, 1940, and rained more or less each day through April 22. The rainy period was pretty general throughout all Pennsylvania. The range in maximum temperature at one weather station for the first 10 days of the month was from 49° to 71°. From April 11 to April 22, the range in maximum temperature was from 34° to 64° at the same station.

One auction's sales date was one day later than the dates at the head of the columns on the accompanying table. Many eggs do not reach the auction until a week after they are laid. It also would require a few days of high humidity and low temperature before they would penetrate into egg room. Note in the table how the increase in percentage of fancies started with April 22, 1940 and carried through April 29, 1940.

Studies conducted at the University of Missouri bring out that eggs can be cooled quickly by using wire baskets for gathering and having a small house fan circulating the air in the egg room. Removing the animal heat quickly from the eggs is an important factor in egg quality. Eggs that are packed while still warm lose quality quickly.

### Pack Eggs Daily

It was interesting to note that those folks who packed their eggs only twice a week made a low percentage of fancies even though they followed the rest of the program. If they packed their eggs daily after the animal heat was removed, or every other day, and followed the rest of the program, most of their eggs made the fancy grade.

A dry egg case is a thief. It will absorb approximately a pound of moisture. Unless the empty cases are put into the egg room with low temperature and high humidity for a day or two in advance of the time they are used for packing eggs, it is almost impossible to make a high percentage of fancies even though the rest of the program is followed.

**Effect of Rainy Weather on Egg Quality at Pennsylvania Auctions**

| | April 11 | April 15 | April 18 | April 22 | April 25 | April 29 | May 2 |
|---|---|---|---|---|---|---|---|
| Total cases | 3779 | 4174 | 3960 | 4151 | 3813 | 4105 | 3823 |
| Total fancy | 1410 | 1597 | 1537 | 1923 | 1668 | 1719 | 1419 |
| Per cent fancy | 37.3 | 38.2 | 38.8 | 46.3 | 43.7 | 41.8 | 37.1 |

There was some rain every day in most of Pennsylvania from April 11 to April 22. The increase in percentage of fancies at the auction sales on April 22, 25, and 29 shows what effect the increased humidity and lower temperature had on egg quality.

### Market Eggs Twice a Week

Those poultrymen who were marketing once a week realized that they had to take better care of their eggs if they wanted to make the fancy grade while the others in many instances become careless of their egg care because they felt marketing twice a week would offset neglect of other practices in the program. All poultrymen should be encouraged to market eggs as soon as possible after they are laid. They should, however, follow the other practices in the program.

### Keep Birds Confined

Experimental work has shown that green feed will affect the color of the egg yolk. Egg buyers insist that eggs, when candled, have a dimly visible yolk shadow. Dark yolks usually have a darker yolk shadow when candled. Keeping the birds confined will also reduce the number of soiled eggs.

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## *Definition of Parity*

The impression seems to be that parity is a hard thing to understand, while really it is very simple. The parity price for an agricultural commodity is one that will give the commodity the same purchasing power, at any stated time, that it had during the period from 1909 to 1914.

In order to compute a parity price, the Department of Agriculture publishes an index of prices paid by farmers, which includes, among many other things, interest rates, taxes, and freight rates. An index of 100 is given to the period August 1909 through January 1914.

In January 1942, this index stood at 146. During the period from 1909 to 1914, farmers received an average price of 21.5 cents per dozen for eggs; when this amount is multiplied by the index figure of 146, and then adjusted for seasonal variation, we find that on January 15 the parity price for eggs was 29.8 cents per dozen. The Department found that on this date farmers actually received 31.3 cents per dozen, which was 105 per cent of parity.

—J. H. Radabaugh, Nulaid News, February, 1942.

# POULTRY RESEARCH

## A New Lethal Gene

New Jersey reports on hereditary microphthalmia in the domestic fowl. The gene is recessive to normal and caused a small eyeball, not variable externally, with thickness of the comb of the chick. Hatching results and the helplessness of the chicks at hatching suggested that the conditions was a semilethal before hatching and a true lethal after hatching.

—H. L. Kempster, American Poultry Journal, April, 1942.

## Size of Thymus and Growth Rate

Size of thymus and bursa Fabricius is a result rather than a cause of rapid growth, report John C. Hammond and H. R. Bird, University of Maryland investigators, in Poultry Science (Vol. 21, No. 2).

The endocrine glands and sections of the digestive tract of chicks from matings producing relatively efficient progeny were not found to be different from those of chicks from matings producing relatively inefficient progeny. Great individual variation in thymus size was noted. The thymus glands and bursas of Fabricius of rapidly growing chicks were found to be several times as large in proportion to body weight as those of slowly growing chicks of the same age or the same live weight.

Removal of thymus glands of day-old chicks did not hinder their rate of growth or development of normal variability. Support is given to the theory that the thymus is not an endocrine gland.

## Delousing Leg Band

A "delousing leg band" for chickens, said to contain chemicals which would kill and repel lice and mites, was ineffective, either in killing lice on infested birds or preventing infestation of lice-free birds, reports C. M. Hamilton of the Western Washington Experiment Station in Veterinary Medicine (April, 1942).

## Fever Therapy for Blackhead

Fever therapy was found highly effective in controlling trichomoniasis (blackhead) in turkeys, report Marlow W. Olsen and Ena A. Allen of the Bureau of Animal Industry, U. S. Department of Agriculture, in Poultry Science (Vol. 21, No. 2).

Birds were confined in an air conditioned cabinet in which the air temperature was maintained at 104° to 106° F. and a relative humidity of approximately 60 per cent. In this environment, the body temperature of the turkeys rose from a normal of 106.5° F. to approximately 111° to 112° F.

Of 60 infected birds, 50 (83.3 per cent) recovered when given the fever therapy. Of 62 controls, only 19 (30.6 per cent) recovered.

## Tapeworm Infestation and Growth

Even though they had been infected with the tape worm Raillietina cesticillus, chicks fed 26 per cent protein gained about as much weight as uninfected controls, but infected chicks on a 13 per cent protein diet gained less weight when infected with tape worms than did their uninfected controls, report Geo. W. Luttermoser and Rex W. Allen of the Bureau of Animal Industry, U. S. Department of Agriculture, in Poultry Science (Vol. 21, No. 2).

## Gizzard Lesions and Breeders' Diet

Severity of gizzard lesions in newly hatched chicks is related to the diet of the parent stock, report A. R. Tepper and H. R. Bird of the University of Maryland in Poultry Science (Vol. 21, No. 2). It was found that diets which did not contain oats, bran, middlings, alfalfa leaf meal, and meat products resulted in relatively severe gizzard lesions in chicks from breeders fed such a ration. The diet which resulted in relatively mild gizzard lesions contained three to five times as much oats as most practical breeder mashes.

## "Crazy Chick" Disease

"Crazy chicks" have a higher water content of parts of the brain. This observation by Dr. H. G. Ni of Henry Lester Institute of Research at Shanghai (Chinese Jrl, of Physiology, 5/ 493) confirms that of Gretsh and Pappenheimer, the two American investigators who did the pioneer work on the study of avian encephalomalacia—ataxia for brevity, or crazy chick disease for simplicity. As our knowledge of the pathology of this malady increases, we are bound to accumulate information which will explain the capricious character of the crazy chick phenomenon.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1942.

## A Sex-Linked Breed

Cornell University is developing a strain of chickens the sex of which can be determined by the coloration of newly hatched chicks. The original stock used in making this interesting breed were Barred Rocks and Anconas and the name Ancobar has been applied to the new breed. An accuracy of 93 per cent was attained in sexing the chicks by this method. Among the chicks with black backs, 98 per cent were females and more than 97 per cent of those with light backs were males. The idea of producing autosexed chicks is not new. Punnet of England developed the Cambars, and Oklahoma has produced the Oklabar.

—H. L. Kempster, American Poultry Journal, April, 1942.

### Pantothenic Acid Content of Various Feedstuffs

Dried brewer's yeast proved to be the most variable, but also the most potent feed stuff in pantothenic acid among a large number of materials tested, report J. C. Bauernfeind, L. C. Norris, and G. F. Heuser of Cornell University, in Poultry Science (Vol. 21, No. 2). The pantothenic acid content of yeast varied from 29.3 to 150.0 micrograms, per gram, an average of 62.8. A sample of Hawaiian molasses was found to contain 57.5 micrograms of pantothenic acid per gram. Liver and meat meal, and dehydrated alfalfa meal were next with 39.6 and 38.4 micrograms per gram, respectively. Dried milk products showed an average variation of from 29.0 to 34.2; Cuban cane molasses contained 21.1; corn gluten meal, soy bean oil meal, wheat Red Dog flour, and wheat standard mildlings contained approximately 15; wheat, oats, fishmeal, and meat scraps contained approximately 9.5; and barley and corn contained, respectively, 7.2 and 6.7 micrograms of pantothenic acid per gram.

### Battery Brooded Birds Lighter

Battery brooded pullets did not weigh quite as much as comparative range reared stock, but the differences were probably not of experimental significance. Using native Cantonese chickens, P. E. Igtanloc of the Philippine Agricultural College (Philippine Agriculturist 29, 687) found range-reared pullets matured somewhat earlier. Livability was markedly in favor of the range-reared birds.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1942.

EGG WHITE is being used as a base for paint inside hermetically-sealed compasses being manufactured for the United States Navy, the Philadelphia Record relates. The Lionel Corporation, maker of toy trains in peacetime, has its own flock of hens to supply eggs. The egg white, which must be fresh, seems to make the paint alcohol resistant.

AN ADVERTISER in Game Fowl News announces that he is publicly filing prior claim to the name of "Colin Kellys" (the American pilot who went to his death in sinking a Jap warship off the Philippines) as the name for a strain of white game fowl.

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# Diary of a Poutlryman

## By PERCY S. WHITE

Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**April 1** — April Fools Day, and what a grand and glorious feeling. I wish that every day were like this one. The laying stock sure pulled a fast one on me, for not a bird kicked the bucket, which is the preliminary step toward incineration. There were no pickouts, blowouts, or deaths due to the fact that the bird simply didn't care to live any longer. The latter class covers a multitude of scientific terminology which only an educated person can understand.

**April 2**—Harold has all the brooding equipment moved to the range brooder houses. Tomorrow he will start setting brooder stoves, although we won't need them for several weeks. I am doing the regular work, feeding, watering, and gathering the eggs. I help Kid White clean them after I do the night feeding, and candle, grade, and pack after supper.

**April 4**—I had to make a run to town this morning and got caught in a heavy rain coming home. It has rained all afternoon, but the eggs have been delivered for the week. Harold cleaned the boards in the three north houses, but it was raining too hard to spread the droppings. That is a job for tomorrow, if it doesn't rain too hard.

**April 5**—This has been one of the most successful weeks in a long time. It was Donnie's spring vacation, and. naturally, we had help. All the regular work has been done and in addition: (1) the sheep have been sheared; (2) all brooding equipment has been moved to the range houses and four stoves have been set up; (3) a half mile of ranch drives has been recoated with road ballast; (4) several loads of cow bedding have been hauled; (5) two loads of cinder ashes have been hauled and spread from Bert Treece's ash dump; (6) an extra load of empty egg cases was hauled late this evening. At 11:30 p.m., all the eggs were packed. After I make the final round, it will be a day.

**April 7** — Old Blue Monday, and it's hard to get started. The thing I did this morning was to smear up a whole basket of eggs. I accidentally hit an egg against the nest. This in itself wasn't so bad, but it so happened that the end was sheared clean off the egg. The net result was that the entire contents went all

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(Everybodys Poultry Magazine, April, 1942)

over those already gathered. Such a mess.

**April 8**—Roy and Harvey Treece were here to move the brooder houses. Their big truck with a capstan mounted on it should be able to move well nigh anything.

**April 9**—A day like today is just a trouble breeder. At least I am pessimistic enough to think so. This stock looks too innocent for me to make today's record over a period of time. Two of the brooder houses have been boxed in around the runners to prevent the chicks from getting underneath the house. It is going to take practically all of the old boards on the ranch to do the job.

**April 10**—The No. 3 bended bow rafter brooder house has been boxed in and now we are waiting for Earl Wharton to bring another load of sand. I like to put sand around the houses and heap it up in front of the chick door as an approach. There were only three brooder houses to move this year and now that the job has been done it is just a question of setting up the stoves. This will be done tomorrow. I always like to get the stoves set in plenty of time for a liberal test-out before the fateful day, which in this case is the twenty-first. A bucket of oil in the tank is a good test of the pipe connections. It has happened before that a stove had to be reset because there was not enough soap on the pipe threads.

**April 12**—We spent most of the day, after the weekly cleaning was done, in catching up on odds and ends. The bended bow brooder houses are all ready to go. About this time next week, we will light the stoves and burn off the crank case oil that was painted on to prevent rusting. This usually makes quite a smoke, but it only lasts for a short time.

The weather man says that the rainfall is 6 inches short of normal for the year to date. Barring floods, washouts, and high water, Old Coxy ought not to be a very serious problem this season. The chances are that there will be something to take its place, a little paralysis, varmints, or what have you.

**April 14** — I have just returned from the egg auction. I decided the best bet was to take the eggs in tonight. In spite of all the plans I can concoct, it seems that I have to work after supper. I should say work late at night. Kid White tells me that when I am working at night, she feels that she knows where I am. I know this much at least: I would rather work at home after night than to be out on the road where the cars are zipping along at 60 miles an hour. I feel safer at home.

**April 15**—My egg quality slipped for a few days, but it is on the up and up now. I am positive that the change can be credited to discontinuing the lights. We noticed this in particular at the first gathering of eggs in the morning—there weren't as many eggs. The bulk of them were laid between 10 and 2 o'clock, until there was only a smattering by 8 a.m. In other words, the birds got off schedule and had to adjust themselves to the new order. If the stock doesn't like the establishment of a "New Order" any better than I do, they must have had terrible mental disturbances.

**April 16**—What is so rare as a June day in April? Spring must be here, having passed that "just around the corner" stage. Two parties came out from town for fertilizer. There was none available except some fresh dropping board manure that was loaded on the trailer. I gathered up some old holey burlap bags and, with the town folk holding the bag, filled them. Each group got three bags of wet droppings, hauling them home in the back of their car. No charge. They were satisfied; I was too. Those few bags of fertilizer meant as much to those town people as a barnyard full means to a farmer.

**April 18**—I get the first draft of chicks on the twenty-first. The prospect of hard times ahead looms up before me. Ralph Howman is plowing the truck patch and that will be ready to plant. Work is piling up and is going to get heavier in the very near future. We tried to get a jump on the cleaning this afternoon, but the north houses are to clean tomorrow.

**April 19**—The rust-preventing coat of oil was burned off the brooder stoves late this evening. Of course, they smoked like a battleship for a while. A high wind was blowing, which made the draft on the stoves just that much stronger. They thumped and banged around on the floor emitting many weird and exotic noises. Monday morning, I will relight them and regulate the thermostat for the proper flow of oil. These oil burners are easy to regulate and they heat up quickly, so in a couple of hours the houses should be ready for the chicks. Walter Buss will bring them out about 2 o'clock.

**April 21** — I could have told the world that it would rain today. It always rains when I get a draft of chicks. I left Walter Buss' hatchery at 2 o'clock with the sun shining as bright as could be, a cloudless day. Strange as it seems, before I could get those chicks under the stoves there was a cloudburst.

The chicks this year are from my own 2, 3, and 4 year old hens, mated to R. O. P. cockerels. They are also all sexed pullet chicks. Whenever one kicks the bucket, throws in the sponge, or turns up its toes, I have lost some real money.

**April 23**—Sleeping on a brooder house floor all night is one of the most illuminating experiences of a lifetime in chickendom. I don't mind the hardness of the floor or the soreness of the joints the next day. My joints creak most of the time. But a brooder house floor is cold; I well nigh froze last night.

The chicks seemed perfectly contented. They were inside the guard and directly under the hover, while I was on the outside of the guard and about 4 feet from the edge of the hover. A brooder house floor is drafty, regardless of how tight the house is closed.

When one steps in the door at night, chicks naturally flatten down to the floor and are quiet. Sleeping with them is an entirely different story; they are never quiet. All night long, they are continually talking to one another, chirping, and making contented noises. They are restless; some are always moving around. Every now and then one lets out a wild shriek like a lost soul crying out in the wilderness. This chicken business sure makes strange bed fellows.

**April 24** — Two air cells in the same egg, two air cells side by side. I never would have believed it if I hadn't seen it myself. This is the first time in 15 years of candling that I have ever seen such a thing. I have seen air cells in the small end and air cells on the side of the egg. I have seen blood spots, meat spots, and the whole interior contents a solid mass of blood. There have been floating air cells like the bubble in a spirit level. Sometimes there are eggs with thin whites and extra dark yolks. An egg within an egg, worms in eggs, eggs with no yolk, eggs with double yolks, all these things I have seen, but never before twin air cells, side by side.

**April 25**—I have relearned an old lesson. Eggs are much cleaner if they are laid in clean nests. It is really so simple that I hate to think about it, but it is also a simple thing to let the nests get out of repair. Clean nests have cut our egg cleaning time just about one-third.

**April 28**—It was a wonder of wonders, but it didn't rain today, even if I did get the second lot of chicks. This was one time when it definitely didn't rain or look like it was going to rain. I think this chick draft today is the best lot of chicks I have ever had. They are big, strong, husky fellows, if one should speak of the gentler sex in such terms. At least, they are supposed to be of the gentler sex. They are 900 sexed pullet chicks from my own old hens.

**April 29**—I have changed my flopping place. I slept last night in the No. 2 house, further out on the range. That is where the youngest chicks are, and surely they need more attention at night than do the older ones. It seems to me that I have a gold mine in the making with the chicks this year. This time next week I will have 2,700 in all. There is so much money tied up in them that I feel that I can't afford to take any risks of any sort. This is why I stay right there with them at night. If anything should go wrong, I want to know it, pronto. There are millions of folks in the world today who would only be too glad to sleep on the floor in a warm, clean, brooder house.

**April 30** — The remaining three brooder houses are all ready for chicks next Monday. All that has to be done is to set in the water fountains and light the stove. I am a firm believer in getting prepared for them well in advance. The No. 6 house is harboring a few rats underneath, or, rather, it has been in the past. Yesterday afternoon it was given a good shot of rat bait. I used two kinds, the red squill rat kiss type, which should be a death kiss for rats, and whole corn soaked in water. The water happened to have a snort of strychnine in it as a sort of pick-me-up and lay-me-down. Both baits had been generously partaken of this morning.

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## *Beware of Moldy Feed*

Mold and turkeys simply do not get along. Nothing will throw breeders or feeders off feed so quickly as to get hold of a lot of moldy grain or mash. At this time of the year, when spring rains are frequent, watch those feed troughs every day. If the feed gets wet it will not hurt the birds if they clean it up at once, but if it turns sour or molds, look out for trouble. Better give a lot of high-priced turkey feed to the hogs than have a flock of "off" birds. Clean those troughs after every rain as a simple matter of precaution.

—Norbest Turkey News, March, 1942.

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❡ COMPLAINTS have been coming out of the men's dormitory at the University of Minnesota about the food served, so a committee recently investigated. A poll of the students showed that they were almost unanimous in their demand for more eggs for breakfast. Regardless of whether or not their complaint was justified, it is plain that the students appreciate hen fruit.

—Poultry Herald, February, 1942.

# Feathering in Broilers is Inheritable

By W. C. SKOGLUND
University of Delaware

*Condensed from Peninsula Broiler Journal*

EDITOR'S NOTE: The following article was written in response to the article "Barebacks Result of Mating Instinct," originally appearing in the Peninsula Broiler Journal, which was carried in the March issue of National Poultry Digest.

THE subject of feathering and causes of barebacks in growing chicks is of interest to all poultrymen, but is of particular interest to broiler growers.

The average strain of pure bred Barred Plymouth Rock tends to be poor in rate of feathering. They will eventually become completely feathered, but at 8 weeks of age a portion of the birds will be barebacks. On the other hand, New Hampshires are famous for rapid feathering and the major portion of them are completely feathered before broiler age. When we cross Rock males with New Hampshire females to produce chicks for the broiler trade, there are still some barebacks.

Feeding, management, and season of the year are all factors that affect feathering but this article is chiefly concerned with the genetic side of feathering.

Research work at the Delaware Agriculture Experiment Station indicates that the rate of feathering is probably handed down from parents to offspring the same as egg production or egg weight. In other words, certain families possess the trait for early feathering while other families in the same flock are slow feathering. If this is true, breeders of Barred Plymouth Rocks can measure the feathering on all progeny from their pedigree matings and thus locate families which possess the desirable feathering characteristics. By breeding from such families, strains of rapid feathering Rocks could be developed, thus enabling the production of broilers with a minimum of barebacks.

This plan was tried out in our 1941 breeding project at the University and the results were quite promising. Two pedigree breeding pens were made up. One contained 12 females and one male from families showing rapid feathering and was designated as the rapid feathering pen. The other pen contained 12 females and one male from slow feathering families and was designated as the slow feathering pen. For our breeding work, we have devised a feathering score which is as follows: 1 — completely feathered at 8 weeks, 2 — partially feathered, 3—very poorly feathered, and 4—completely bareback. From this it can be seen that the desired score in individuals is 1 and that the desired average score of a group is as near as 1 as possible.

The Peninsula Broiler Journal, Selbyville, Del.
(Peninsula Broiler Journal, March 16, 1942)

The progeny from the two pens were examined and their feathering condition scored at eight weeks of age. The average feathering score of all the male chicks from the rapid feathering pen was 2.41 as compared to 3.12 for the slow feathering pen. The average score of the females from the rapid feathering pen was 1.56 as compared to 2.57 for the slow feathering pen.

This difference in feathering is also shown in the percentage of birds scoring 1 (perfect) in feathering. In the males, 26.14 per cent of the chicks from the rapid feathering pen scored 1, as compared to 2.47 per cent in the slow feathering pen. In the females, 72.73 per cent from the rapid feathering pen scored 1 while only 30.23 per cent from the slow feathering pen qualified for a score of 1.

It should be pointed out that this unpublished data is only preliminary work and that further work is being conducted along this line. However, it does seem to indicate that through family selection the rapid feathering families can be increased. This work involves the use of detailed pedigree records, but the man who is not doing any of this type of breeding work can still make progress by carefully eliminating all of his Barred Rock cockerels that are not completely feathered at 8 weeks.

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## *Peep Pane*

A glass pane in the laying-house door is a paying addition, even if it is only large enough for a peek hole. L. J. Sheldon has doors with the upper half glass in his houses in Waseca county, Minnesota, because they enable him to see what is going on without opening the door. Hens frequently stampede when a door is opened unexpectedly. In winter, an open door may let in floor drafts detrimental to hen health.

—Capper's Farmer, April, 1942.

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¶ A 303-YEAR-OLD egg, probably laid by one of the first hens to cackle and scratch in what is now Ontario Province, Canada, has been unearthed from the ruins of old Fort Ste. Marie, in the Georgian Bay district, according to a newspaper report. The egg was found 8 feet under ground, and was said to be perfectly preserved, but not good for boiling or frying.

# VIEWS OF THE EDITORS

## A Field For Conservation

War and its manifold effects are making us all more conservation-conscious. In the handling of eggs and poultry more thought in regard to conservation may not be amiss. In normal times we accepted as unavoidable many losses that are really preventable. For example, in the commercial handling of a damageable and fragile commodity such as eggs there is bound to be some breakage, but the degree of loss may be greatly lessened by the proper sort of educational work among employees and all others who handle the highly perishable product.

Constructive programs to conserve rubber are accomplishing much. Handlers of eggs in packing plants, truckers, railroad employees, and expressmen may all be influenced to exercise care by the proper appeal. And the same program may effectively be carried to the egg candling, cartoning, and rehandling field. Strong appeals for voluntary cooperation and emphasis on the need for food and more food for our armed forces and allies will impress the most careless that the needless breaking of eggs is an act that hinders the war effort.

In the poultry industry, it is lamentable to admit that losses are incurred by the careless and rough handling of live birds. But altogether too often do we see coops slammed on and off trucks in the roughest manner. Breast and back bruises are a common result of such handling, and in marketing such poultry dressed, the grade and price must be sacrified. Also, in the transferring of poultry from coops to batteries or from coop to coop, careless treatment causes further losses and injury to the birds. Here again, an educational program will cause handlers to become more careful and unquestionably will reduce this wholly unnecessary waste.

While we think so much about conservation programs in respect to tires and cars, we may, perhaps, be overlooking an opportunity for constructive endeavor in "our own backyards."

—American Egg and Poultry Review, March, 1942.

## Salvage for Defense

There's a lesson for farmers in that game-of-tag war in Libya. According to observers, one reason the Axis forces have been able to turn the tables on the British offensive is the thorough salvage program employed by the German army. "Not even a small rusty nut or bolt escapes their careful conservation" is the report we get. And out of wrecks and scraps the enemy quickly restores his strength.

This is a war measure that surely can be effective on the farm. But to do it right somebody must take charge and carry the idea into practice all the time. The oldest 4-H club member or vocational student in your family could very well be assigned this responsibility. Around any farm, there are enough war-important items to salvage to make a good job of it worthy of the family's equivalent of the Distinguished Service Cross.

There's paper, burlap, scrap iron, old rubber, and copper and zinc from old machines . . . all items well worth collecting for sale to the agencies that will get them back in use. Then there are nails, bale wires, cords, pieces of wire netting, tin containers, crates, baskets, cartons, lumber scraps, and metal drums and buckets . . . all things that could be accumulated in an orderly, handy collection for re-use on the farm. Yes, good housekeeping around the farm can save money and serve the country's war effort—and it can give somebody on the farm a spark of well-expressed patriotism, too.

—Eastern States Cooperator, March, 1942.

## Plug Food Leaks

With experienced help even scarcer than in 1941, Uncle Sam is still looking to the farmers of this country for greater and greater production of food. How are American farmers going to fulfill this trust? Certainly not by any great increase in hours of physical labor. That is impossible. The only way it can be done (and we predict it will be done) is by increasing the returns per hour of work.

One great possibility for improvement lies in curtailing waste. We are not referring merely to the waste paper, scrap iron, bones, or worn-out tires that can be gathered up and sold. We mean the salvage of vast quantities of food-making material that are lost every year in the process of converting farm-grown feeds into meat, milk, and eggs.

Take the matter of feeding "by guess" — keeping mash in front of hens and throwing them grain every morning and evening, without any check as to whether they are eating half mash and half grain or some other proportion.

Or take the matter of feeding unbalanced or improperly balanced rations—taking 6 to 7 months time and 25 lbs. of feed to raise a pullet to maturity, where 20 lbs of properly balanced feed would grow a full-bodied bird in 5 months.

Or take the matter of uncontrolled parasites and preventible disease which, alone, are estimated to cause an annual wastage equivalent to ten times the quantity of food the United States will ship to Great

Britain in 1942. Or the matter of ill-ventilated buildings, which cause floor dampness and discomfort to birds. Or the buying of baby chicks without knowing where they came from or what kind of ancestors they had.

Given normal weather conditions in 1942, the plugging of these leaks would be more than ample to assure the extra food output that Uncle Sam needs. We believe this is one of the biggest jobs that farmers can tackle, even more important than raising extra chicks. It isn't a matter of extra labor. Largely, it's a matter of care. Any additional cash outlay that may be necessary is like money put into a Defense Bond — a safe kind of investment, but a slap at Hitler & Co. just the same.

—Checkerboard News, March, 1942.

### Shortages

Agriculture has lost a million workers. Both the armed forces and jobs at wages in towns have cut into the labor supply. It may be easy to find a man to drive a tractor and plant a field, but it is not easy to find a man who can feed livestock and get results. Horses, cows, hens, pigs, and every animal the farm has on it, require a certain amount of labor and an indispensible quality of observation, backed by knowledge. "It is the eye of the master that fattens the cattle."

When war first broke upon the world, this writer stated that shortages always make their appearance in war time; that, no matter what the peace-time estimates of needs be, they always prove inadequate under war conditions. Shortages are already putting in their appearance, but it is only the start. Expenditures for war will be doubled in 1942, absorbing twice as much material and twice as much labor as last year. All this labor will have money to spend, and there will be fewer goods to supply the demand. A simple thing like pillows are being cornered by army and navy demand. The army recently let a contract for 1 million duck feather pillows, and the navy has ordered 650,000 pillows filled with chicken feathers. It takes the feathers from eight chickens or ducks (about 3 pounds of feathers) to fill one pillow. With feathers called to the colors, the New York Times reported that New York City department stores put up signs, "No Pillows Today," for the retail trade.

—Frank L. Platt, American Poultry Journal, April, 1942.

### National Board Building Against Post-War Need

We're in a world war, and the poultry industry is asked to greatly increase the production of eggs and poultry meat. Why? Because they are protective foods—rich in health-promoting proteins, vitamins, and minerals.

Vigorous health is a prime essential in a soldier. A detailed study of the physical examinations of our boys who have already been drafted for this war show the need for a greater consumption of protective foods like eggs, milk, and fresh vegetables by the American people. We are advised that for normal health we should eat 35 per cent more eggs than we do—over one-third more is certainly a lot more eggs.

The Poultry and Egg National Board is capitalizing on the fine piece of promotional work being done by Uncle Sam for the poultry industry. Right now is the time to build in the public mind a greater appreciation of the health values of eggs and poultry.

Educating the American family to want to eat more eggs and poultry—for their health's sake—should prove worth while to our industry in a post-war depression. The Poultry and Egg National Board is receiving national recognition for the fine job of consumer education it is doing.

—Nulaid News, February, 1942.

### Marketing

Government domination of markets and control over prices of agricultural products seem to be set for the duration and longer. Even the forces of supply and demand will be neutralized. If the demand is heavy and supply is short, a combination that would force prices upward, regardless of government pegging, there remains the alternative of rationing which would effectively hold demand down to the available supply. Natural forces are all out the window until the end comes.

—Frank L. Platt, American Poultry Journal, April, 1942.

### We Are at War

Realization that this country is in a war which threatens our existence as a nation has been slow to come to many folks. But our government must take much of the blame for this attitude. It has shown a tendency to soft-pedal the seriousness of some of the defeats suffered by the United Nations in the Pacific region, yet the successes of the Japs, who have made war a business, must convince America that we have a tough job on our hands, that we cannot afford to lose.

Naturally, there are some things which are hard to understand. Why should officials express concern over inflation at the same time they justify excessive wage rates and time-and-a-half for overtime work, the very thing that causes more spending? Why should time-and-a-half and double-time rates be paid on government orders when these increased costs must be passed on in higher taxes? Why should the impression be left with the general public that farmers are a greedy, selfish lot because they want parity prices?

These are situations which time will correct. Certainly, we would not want to discard our system of democracy because it permits them to exist.

Farmers and poultry raisers will be called upon to make even more sacrifices. We have a job to do. We must produce food. And we will have to do it with less help, less equipment, and longer hours at work. We may feel like grumbling. It's natural. But think of the men on the fighting fronts. We can't let them down.

—Everybodys Poultry Magazine, April, 1942.

## The Man Behind the Hen

Perhaps in no line of activity is the human factor of greater importance than in poultry raising. Successful poultry production is as much of an art as a science, and the poultryman must not only feed and house his birds but he must also think for them. Whether or not the chicks grow well, develop into sound pullets, and prove profitable as layers depends upon the poultryman himself.

Just as morale wins victories on the battlefield and the "proper mental attitude" is considered all-important in athletics, the attitude of the poultryman towards his business will determine, in most cases, his success or failure.

No poultryman ever succeeded who did not want to succeed and who was not willing to try, willing to learn, and willing to work. Successful poultry raising need not be complex and difficult, but few poultrymen today will contend that it is an easy business or one in which less difficult problems present themselves than distinguish the ordinary business. Let us agree, first, that enthusiasm, careful planning, and intelligence are just as necessary and useful in poultry raising as in any other endeavor.

Experience teaches that you are not apt to succeed with chickens unless you enjoy working with chickens. The naturalist will succeed more often with poultry than the scientist or mechanic who may correctly analyze and master the technique of the enterprise, but who is irked by its routine and overlooks or neglects the important thing-the chickens themselves.

Thirty years ago, E. G. Wyckoff, one of the pioneer breeders of White Leghorns, said, "Successful poultry raisers are, as a rule, born and not made. The man or woman who attempts to raise poultry on a large scale will not succeed unless he or she has a natural liking or inborn talent for the business."

Yet in this modern day something besides a liking for chickens is necessary if success on a commercial scale is to be made reasonably sure. Something besides willingness to work hard is important if the effort is to be productive. Effort regulated by knowledge is the key to success with poultry, as with anything else.

No poultryman who aspires to the fullest measure of success will look on an idea or method as absolutely right if there is a possibility that it may be wrong. Be open-minded and fair-minded, but don't fluctuate with the breeze. What we consider as fact today may be fallacy tomorrow. There is too much pride in one's own way of thinking and doing among most poultrymen. Too many poultrymen infrequently leave their farm to learn from the experience of others. And too many poultrymen are forced to pay dearly for their experience when they might have it for nothing.

—Copyright, 1942, Dryden Poultry Bulletin, March, 1942.

## It's a Poor Rule

The theory of Parity is Justice. Yet in its application it doesn't always work out that way.

The poultry industry today is facing a ridiculous situation. We have an arbitrary parity based on a theoretical series of costs. We have developed from this a theoretical support point of 85 per cent of this parity. From the practical point of view this is plain bunk, for it just doesn't work. In order to keep our poultrymen in business, U.S.D.A. officials already have to put their hands over their eyes and support prices up to 99 per cent of parity.

We all know that on the farm about one-half the total cash cost of producing poultry and eggs is feed. We also know that feed growers have a parity ambition of their own, and are well enough organized politically to keep it as high as possible. This should mean that the upward price movement of feedstuffs would automatically advance the parity prices of poultry products. Poultrymen are concerned over this because, as has been already noted, feed accounts for about one-half the poultryman's cost of production. But where does all this fit into the parity discussion?

In the parity formula lies a dangerous joker that should get the prompt attention of every organization of commercial poultrymen. If it is not corrected, it spells ruin, for in this formula the industry faces a profit eating progression that can not be stopped or avoided except by a basic change. It is as mathematically fixed and as deadly as compound interest in reverse.

We all know how $10 a ton advance in feed prices affects poultry profits. Unless the producer can similarly advance his prices enough to equal this advance in one-half of his cash costs, he is licked. Washington seems to forget the poultryman is a farmer, too, and to him feed is just another of the items he buys.

The poultry parity formula is supposed to protect him against new burdensome advances in the careful selection of items that go into their parity index and the relative values that they give these different items. But does this happen? No. The importance (which economists call "the weight") given to changes in the price of feed should equal 50 per cent of the total values (or weights) used in setting up the parity for poultry. This is because feed equals 50 per cent of the poultryman's total costs. But the government pencil sharpeners didn't figure it that way. They give feed price changes an importance of less than 20 per cent of what the poultryman buys. This means that in spite of a 50-50 cost value, as set by the voice of experience, the parity boys really set poultry prices on worse than an 80-20 basis. Since 50 per cent (which is what the value should be) is more than two and a half times the figure used by the government, this means, further, that only about 40 per cent of any advance in feed prices can be used to correct poultry parity prices. In other words, for each time feed prices advance $25 a ton, less than $10 of that advance can be used to move up our protective poultry parity.

What's the answer? Get your organization on the job and, by supporting NEPPCO, start at once to get a special poultry formula for poultry. It can be done.

—Northeastern Poultryman, March, 1942.

## *Keep'em Laying*

The Massachusetts State College Extension Service suggests that "Keep 'em Laying" be the slogan for poultry raisers during 1942. It offers 10 ways to accomplish this.

1. Adopt a feeding, housing, lighting, management, and culling program that will get every possible egg from your flock.
2. Keep your poultry plant operating at full capacity.
3. Hatch broods of fall and winter chicks in addition to the regular season hatches.
4. Raise an extra 10 per cent of pullets to sell or to house in temporary quarters.
5. Carry a month's feed supply.
6. Order needed supplies and repairs early.
7. Kill all rats.
8. Protect the quality of the eggs you produce.
9. Reduce your indebtedness.
10. Save labor in all places possible.

—Everybodys Poultry Magazine, March, 1942.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

### Number of Hens Per Flock, Eggs Laid Per Hen and Per Flock, First Day of Month

| Geographic Division | Layers per flock Jan. 1 | Feb. 1 | Mar. 1 | Eggs per 100 layers Feb. 1 | Mar. 1 | Jan.-Mar. | Eggs per flock Feb. 1 | Mar. 1 | Jan.-Mar. |
|---|---|---|---|---|---|---|---|---|---|
| North Atl. | | | | | | | | | |
| 1931-40 (Av.) | 97.4 | 95.4 | 93.6 | 34.6 | 43.3 | 106 | 32.9 | 40.6 | 101 |
| 1941 | 95.4 | 94.5 | 89.8 | 41.2 | 48.5 | 127 | 38.9 | 43.5 | 118 |
| 1942 | 99.6 | 97.7 | 94.8 | 40.9 | 49.1 | 128 | 39.9 | 46.5 | 124 |
| E. N. Cent. | | | | | | | | | |
| 1931-40 (Av.) | 108.8 | 107.8 | 104.3 | 28.0 | 38.0 | 87 | 30.5 | 39.8 | 94 |
| 1941 | 110.3 | 108.5 | 103.3 | 35.7 | 42.5 | 108 | 39.0 | 44.0 | 117 |
| 1942 | 116.0 | 114.4 | 111.0 | 36.2 | 43.6 | 112 | 41.7 | 48.6 | 128 |
| W. N. Cent. | | | | | | | | | |
| 1931-40 (Av.) | 116.4 | 115.8 | 111.8 | 22.4 | 33.7 | 72 | 26.3 | 38.0 | 83 |
| 1941 | 116.1 | 114.7 | 115.0 | 29.9 | 40.4 | 92 | 34.6 | 46.4 | 107 |
| 1942 | 127.3 | 128.6 | 127.3 | 34.7 | 42.6 | 104 | 44.7 | 54.3 | 133 |
| South Atl. | | | | | | | | | |
| 1931-40 (Av.) | 58.6 | 57.2 | 55.9 | 29.5 | 42.5 | 94 | 16.9 | 23.8 | 54 |
| 1941 | 59.4 | 58.0 | 56.0 | 34.4 | 45.5 | 109 | 19.9 | 25.4 | 62 |
| 1942 | 62.2 | 62.3 | 60.5 | 34.4 | 45.2 | 108 | 21.4 | 27.0 | 66 |
| South Cent. | | | | | | | | | |
| 1931-40 (Av.) | 63.7 | 63.1 | 61.0 | 26.6 | 41.3 | 87 | 16.9 | 25.1 | 54 |
| 1941 | 62.7 | 61.8 | 60.2 | 33.4 | 45.5 | 102 | 20.8 | 27.3 | 62 |
| 1942 | 70.5 | 69.2 | 68.1 | 33.4 | 44.9 | 103 | 23.2 | 30.7 | 71 |
| Western | | | | | | | | | |
| 1931-40 (Av.) | 73.0 | 72.3 | 70.5 | 31.7 | 44.9 | 101 | 22.3 | 30.6 | 70 |
| 1941 | 71.6 | 69.1 | 67.5 | 36.0 | 49.1 | 113 | 24.5 | 32.5 | 76 |
| 1942 | 73.6 | 73.4 | 71.6 | 36.4 | 47.1 | 113 | 26.3 | 32.1 | 80 |
| United States | | | | | | | | | |
| 1931-40 (Av.) | 83.5 | 82.6 | 80.0 | 27.2 | 38.9 | 86 | 22.5 | 31.3 | 71 |
| 1941 | 83.2 | 81.9 | 79.7 | 33.9 | 43.9 | 104 | 27.9 | 34.9 | 85 |
| 1942 | 89.8 | 89.2 | 87.4 | 35.5 | 44.6 | 109 | 31.5 | 38.8 | 96 |

Egg production in February was a record for the month, both in the rate of lay per hen and in total number of eggs. The total output of 3,836,000,000 eggs was 15 per cent larger than the previous record production of February 1941 and 34 per cent larger than the 10-year (1931-40) February average. The aggregate production in the first 2 months of 1942 was 16 per cent larger than the previous record for the period. Abnormally mild weather during most of February in the north Central States, especially in the upper Mississippi Valley, was very favorable for egg production. On the other hand, the unusually cold weather in February in the lower South and in much of the country west of the Rockies was unfavorable for egg production in those areas.

The rate of lay in February set a new record high for the country as a whole. The extremely high rate of lay in the West North Central States, more than enough to offset the 1 per cent lower rate than a year ago in the

South Atlantic and South Central States and the 2 per cent lower rate in the Western States. The rate of lay was above a year ago by 10 per cent in the West North Central States, by 2 per cent in the East North Central and by 4 tenths of 1 per cent in the North Atlantic States. The heavy rate of lay has continued into March with the daily rate shown by sample farm flocks on March 1 at 2 per cent above the previous record high of March 1 last year.

There were 362,481,000 layers in farm flocks during February, the largest number since 1928. The number of layers was greater than in February last year by 12 per cent, and above the 10-year average by 13 per cent. The largest increase from a year ago was the 16 per cent in the West North Central and the smallest the 6 per cent in the North Atlantic States.

February egg production was the highest on record for the month, and the rate of lay was also a new record high. Abnormally mild weather during February in the North Central States contributed to this situation. Weather conditions were less favorable during early March in some of the important producing sections. Nevertheless, receipts of eggs at Central West primary market packing plants have been much heavier than a year ago, with weekly percentage increases from 75 to 100 per cent since March 1. For the most part, receipts at these plants have shown seasonal increases since the first of the year. Heavier country marketings are reflected in heavier terminal market receipts. At the four principal wholesale markets, March receipts of eggs were about 8 per cent greater than those of a year ago. In addition to eggs shipped to terminal markets, many are moving from country packing plants direct to other points for drying.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Receipts of Eggs and Poultry

Receipts of live fowl at Central Western packing plants showed an average decline of 15 per cent the first three weeks of March, while receipts of all poultry was 10 per cent below last year's level. For the week ending March 21, receipts of fowl were 23 per cent, and total poultry receipts 22 per cent below the corresponding week last year. Marketing of fowls is now at the seasonal low point, a situation which normally continues through April, due to the tendency to hold layers on the farm through the heavier egg producing season. Total receipts of live poultry at this time of the year are affected to a considerable degree by commercial broiler production, particularly on the Eastern Seaboard.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Receipts of Eggs (cases) at 4 Markets*

| Geographic Section | February 1942 | February 1941 | % change | Jan. to Feb., Inc. 1942 | Jan. to Feb., Inc. 1941 | % change |
|---|---|---|---|---|---|---|
| New England | 74,620 | 49,580 | +50.5 | 160,944 | 113,606 | +41.7 |
| Middle Atlantic | 238,199 | 202,876 | +17.4 | 470,837 | 438,895 | + 7.3 |
| South Atlantic | 18,687 | 16,745 | +11.6 | 32,139 | 31,938 | + 0.6 |
| East North Central | 240,884 | 204,462 | +17.8 | 440,119 | 425,779 | + 3.4 |
| West North Central | 450,329 | 530,458 | –15.1 | 703,634 | 938,651 | –25.0 |
| South Central | 9,545 | 5,459 | +74.8 | 12,268 | 7,074 | +73.4 |
| Mountain | 17,132 | 22,899 | –25.2 | 38,046 | 42,385 | –10.2 |
| Pacific | 7,736 | 7,571 | + 2.2 | 31,947 | 22,595 | +41.4 |
| Miscellaneous | 287 | 394 | –27.2 | 564 | 802 | –29.7 |
| TOTAL | 1,057,419 | 1,040,444 | + 1.6 | 1,890,498 | 2,021,725 | – 6.5 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic Section | February 1942 | February 1941 | % change | Jan. to Feb., Inc. 1942 | Jan. to Feb., Inc. 1941 | % change |
|---|---|---|---|---|---|---|
| New England | 99,620 | 232,875 | –57.2 | 344,409 | 516,416 | –33.3 |
| Middle Atlantic | 1,408,427 | 1,487,375 | – 5.3 | 3,129,834 | 3,279,941 | – 4.6 |
| South Atlantic | 4,325,601 | 2,231,507 | +93.8 | 9,067,523 | 4,735,789 | +91.5 |
| East North Central | 1,665,615 | 2,377,109 | –29.9 | 3,984,166 | 5,211,643 | –23.6 |
| West North Central | 6,905,975 | 8,634,906 | –20.0 | 18,584,221 | 23,094,703 | –19.5 |
| South Central | 1,213,069 | 1,649,471 | –26.5 | 2,485,041 | 3,171,635 | –21.6 |
| Mountain | 570,693 | 451,575 | +26.4 | 2,265,093 | 2,060,757 | + 9.9 |
| Pacific | 674,689 | 1,444,137 | –53.3 | 2,194,633 | 3,201,455 | –31.4 |
| Miscellaneous | 0 | 0 | – | 0 | 0 | – |
| TOTAL | 16,863,689 | 18,508,955 | – 8.9 | 42,054,920 | 45,272,339 | – 7.1 |

* New York, Chicago, Philadelphia and Boston.

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| March 6 | 27 | 47,696 | –1.96 | +33.08 |
| March 13 | 24 | 44,069 | +8.19 | +47.91 |
| March 20 | 29 | 53,365 | +3.02 | +48.51 |
| March 27 | 25 | 52,721 | –0.88 | +40.75 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| March 7 | 61 | 76,053 | 65,076 | +6.50 | +16.87 |
| March 14 | 61 | 75,582 | 65,337 | +1.38 | +15.68 |
| March 21 | 61 | 80,207 | 67,319 | +3.93 | +19.14 |
| March 28 | 61 | 81,598 | 68,343 | +1.73 | +19.39 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1942 | Cases of Eggs 1941 | Cases of Eggs % Chg. | Pounds of Poultry (000 omitted) 1942 | Pounds of Poultry (000 omitted) 1941 | Pounds of Poultry (000 omitted) % Chg. | Pounds of Young Stock (000 omitted) 1942 | Pounds of Young Stock (000 omitted) 1941 | Pounds of Young Stock (000 omitted) % Chg. | Pounds of Fowl (000 omitted) 1942 | Pounds of Fowl (000 omitted) 1941 | Pounds of Fowl (000 omitted) % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mar. 6 | 321,551 | 158,848 | +102.42 | 1,448 | 1,526 | – 5.10 | Discontinued Until Larger Volume is Available | | | 1,175 | 1,345 | –12.65 |
| Mar. 13 | 351,764 | 164,670 | +113.62 | 1,449 | 1,484 | – 2.38 | | | | 1,159 | 1,266 | – 8.43 |
| Mar. 20 | 370,108 | 212,891 | + 73.85 | 1,228 | 1,579 | –22.18 | | | | 1,025 | 1,334 | –23.18 |
| Mar. 27 | 451,734 | 241,623 | + 86.96 | 1,090 | 1,612 | –32.37 | | | | 833 | 1,370 | –39.17 |

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Avg. Egg Price per Doz. (Dollars) | | | Avg. Feed Cost per 100 lbs. (Dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 |
| March 5 | 8.3 | 10.1 | 9.9 | .293 | .189 | .194 | 2.43 | 1.90 | 1.92 |
| March 12 | 8.2 | 10.1 | 10.0 | .296 | .192 | .191 | 2.42 | 2.13 | 2.12 |
| March 19 | 8.4 | 9.4 | 10.0 | .288 | .209 | .192 | 2.42 | 1.97 | 1.92 |
| March 26 | 7.9 | 8.9 | 10.0 | .294 | .225 | .192 | 2.33 | 2.00 | 1.92 |

—Compiled by N. Y. State Department of Agriculture and Markets.

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Price of Fresh Graded Firsts (Dollars) | | Cost of Ration per 100 lbs. (Dollars) | |
|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | 10-Yr. Avg. 1931-40 | 1942 | 1941 | 1942 | 1941 |
| March 6 | 5.87 | 7.36 | 6.44 | .283 | .165 | 1.660 | 1.214 |
| March 13 | 5.93 | 7.26 | 6.45 | .287 | .171 | 1.702 | 1.241 |
| March 20 | 6.53 | 6.82 | 6.53 | .273 | .185 | 1.719 | 1.262 |
| March 27 | 6.11 | 6.57 | 6.72 | .281 | .197 | 1.718 | 1.292 |

### Central California Egg-Feed Ratio

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | | | |
|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | 1939 | 1938 | 1937 |
| February | 8.10 | 8.00 | 9.60 | 7.55 | 9.05 | 10.20 |
| Jan.-Feb. | 7.31 | 7.02 | 9.47 | 6.94 | 8.00 | 8.96 |
| Year | | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 |

—Data Compiled by Dorothy B. Erdhal, University of California.

## Egg Prices

Egg prices fluctuated somewhat during March, with government buying constituting the major support, the U. S. Department of Agriculture reorts. Purchases by the Agricultural Marketing Administration, principally of dried eggs, largely accounted for such trade optimism as existed. Relatively lighter buying by the A. M. A. during the week of March 9-14 caused a temporary weakness in prices at terminal markets, but this situation was offset by heavier purchases later in the month. There is some concern among the trade regarding production increases which have occurred or appear to be in prospect, and there is some feeling that consumption of shell eggs has not broadened in keeping with increased production. At Chicago, which is the only market where information regarding the volume of retail sales is available, consumption is lower than during recent years.

Wholesale prices of eggs are 9 to 10 cents per dozen higher than a year ago. Mixed Color Firsts at New York averaged about 28¾ cents during March, compared with 19½ cents in March 1941. There were fractional ups and downs during the month, but without any material net change. Pacific Coast eggs are at the moment in a stronger position in the New York market than other classifications, having advanced about 3 cents during the month, with the better qualities up to 37½ cents. On the Pacific Coast, U. S. Extras are 32½ to 33 cents. In the Chicago market, Fresh Firsts on the spot market were 29¼ cents on March 31, and the price on April Storage Packed Firsts on the futures market was 30.3 cents. On this same date, Refrigerator Standards for October delivery closed at 32.3 cents.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### 1942 Egg Prices at New York City

| Kind | Mar. 6 | Mar. 13 | Mar. 20 | Mar. 27 | Mar. 27 '41 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 29 | 28¾-29 | 28½ | 28¾ | 21¼ |
| Nearby and Midwestern White Premium Marks | 30½-33 | 30½-33 | 31-33 | 31½-33½ | 25-26½ |
| Nearby and Midwestern White Exchange Specials | 30 | 29¾ | 30-30½ | 30½-31 | 24½ |
| Pacific Coast Specials | 34½-35 | 36-36½ | 37-37½ | 37¼-37½ | 28-28½ |
| Nearby and Midwestern Brown Specials | 30-30¼ | 29¾ | 30½ | 29½ | 23 |

### Mid-Month Farm Price of Eggs Per Dozen

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. 1931-40 | 20.8 | 17.6 | 15.6 | 15.4 | 15.4 | 15.3 | 16.8 | 18.4 | 21.5 | 24.4 | 27.7 | 26.3 |
| 1941 | 19.7 | 16.8 | 16.4 | 19.7 | 20.1 | 23.2 | 25.6 | 26.8 | 30.3 | 31.8 | 35.5 | 34.1 |
| 1942 | 31.3 | 27.5 | | | | | | | | | | |

## Government Purchases

The Agricultural Marketing Administration accepted offers on 18,121,210 pounds of dried egg in February. Offers accepted March 1 to 20 totaled 16,322,975 pounds.

### Purchases of Eggs and Poultry Products by the U. S. D. A.

| Week Ending | Shell Eggs | Dried Eggs | Canned Poultry | Chicken Broth |
|---|---|---|---|---|
| | Cases | 1,000 lbs. | 1,000 lbs. | 1,000 lbs. |
| March 7 | 48,021 | 6,209 | —— | 27 |
| March 14 | 4,800 | 1,458 | —— | — |
| March 21 | 21,621 | 8,910 | —— | — |
| March 28 | 10,254 | 10,096 | —— | — |
| 1942 Total to March 28 | 370,314 | 55,345 | 796 | 27 |

## Eggs in Storage

**Storage Holdings of Eggs**

| Kind | Mar. 1 5-Yr. Avg. 1937-41 | Mar. 1 1941 | Feb. 1 1942 | Mar. 1 1942 | % Change Mar. '41-Mar. '42 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| Shell Eggs (cases) | | | | | |
| SMA and FSCC | | 16 | 193 | 128 | +700.0 |
| Commercial | 228 | 291 | 138 | 393 | + 35.0 |
| Total | 231 | 307 | 331 | 521 | + 69.6 |
| Frozen Eggs (lbs.) | | | | | |
| SMA and FSCC | | | 13,946 | 12,165 | |
| Commercial | | | 62,347 | 61,529 | |
| Total | 50,186 | 45,239 | 76,293 | 73,694 | + 62.8 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 1,338 | 1,206 | 2,034 | 1,965 | + 62.8 |
| Total (cases) | 1,569 | 1,513 | 2,365 | 2,486 | + 63.6 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

Cold storage stocks of eggs on March 1, including the shell equivalent of frozen eggs, totaled 2,486,000 cases—64 per cent more than a year ago and 58 per cent more than the 5-year (1937-41) average. Holdings of shell eggs were increased by 190,000 cases during February and on March 1 amounted to 521,000 cases, an increase of 70 per cent from a year ago and over double the 5-year average holdings.

Frozen egg stocks on March 1 totaled 73,694,000 pounds, an increase of 63 per cent from a year ago. The Surplus Marketing Administration and Federal Surplus Commodities Corporation are holding 25 per cent of the shell eggs in storage and 16 per cent of the frozen egg stocks.

By March 28, however, storage stocks in the 35 cities reported weekly totaled 915,000 cases, of which 803,000 cases belonged to commercial interests. Government owned eggs in storage were reduced slightly in number during March so that there was a net increase in commercial stock of 598,000 cases, or 140,000 cases over the March 1941 increase. Total stock in the 35 cities on March 28 were 272,000 cases heavier than a year earlier and commercially owned stocks were 173,000 cases heavier.

During March, stocks in the 35 cities increased 14 million pounds to a total of 67 million pounds (56 million commercial). Commercially owned stocks in the 35 cities at the beginning of March were 40½ million pounds

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Poultry Meat Prices

**Mid-Month Farm Price of Chicken Per Pound**

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. 1931-40 | 13.3 | 13.4 | 13.7 | 14.1 | 14.0 | 13.8 | 13.7 | 13.6 | 13.9 | 13.3 | 13.0 | 12.7 |
| 1941 | 13.7 | 14.0 | 14.4 | 15.7 | 16.3 | 16.3 | 16.8 | 16.3 | 16.3 | 16.0 | 15.5 | 15.8 |
| 1942 | 17.0 | 17.4 | | | | | | | | | | |

Prices of live poultry were irregular during March, with fowl benerally higher at the close. All classes were higher at Chicago, while on most eastern markets fryers and broilers declined. In comparison to March 1941, prices were higher, ranging at the close of the month from about 5 cents higher on fowl to only slightly higher on fryers and broilers. The trend of prices on the different markets during the month closely reflected the volume of receipts. Arrivals of fowl continued light and the market on this class held firm. Similarly, roasters were scarce and prices well sustained. Chicago experienced a favorable market on all classes of poultry reflected by general advances. However, Eastern markets were liberally supplied with nearby commercially-produced fryers and broilers, and difficulty in moving arrivals in competition with frozen dressed poultry offerings resulted in a weak market and lower prices.

Prices on dressed poultry were irregular during March, with declines recorded for most classes. Seasonal increases in receipts and pressure to move storage stocks resulted in liberal offerings and price shading. Receipts of dressed poultry on the four principal markets during March exceeded the same period last year by approximately 7 per cent. In the East, small broilers were particularly burdensome and prices broke sharply. However, clearance of receipts of all fresh killed stock was slow. Resistance to declines was exhibited by fowl due to relatively light fresh receipts, a situation which has existed for several months. Frozen roasters prices showed stability with government purchases a strengthening factor. Frozen turkey prices showed no material change, as young toms declined about 1 cent and young hens advanced almost an equal amount.

Fresh western dressed fowl held around 27 to 28 cents at New York throughout March. This price was 7 cents higher at the beginning of the month and 4 cents higher at the close than for March 1941. Eastern shore, fresh-killed, ice-packed broilers at New York, weighing 1 to 1½ pounds declined 8 to 9 cents; 2 to 3 pound sizes held fairly steady around 23 to 25 cents, and 4 to 5 pound sizes declined about 1 cent, while frozen fryers, roasters and turkeys held about unchanged. On the whole, prices continued well above last year's level, and, in the case of fowl, the level was the highest for March since 1930.

Turkey prices advanced 1 to 3 cents on most markets during March, with young hens selling 5 to 7 cents higher than young toms. Prices on both hens and toms generally are 5 to 6 cents above last year's level. Receipts are light, and stocks of frozen turkeys were not being pressed for sale.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Poultry in Storage

Frozen poultry stocks on March 1 totaled 178,829,000 pounds, which were 9 per cent heavier than those of a year earlier and 31 per cent above the 5-year average. Stocks of all classes of poultry decreased during February, with the greatest decrease, 20 per cent in stocks of fryers.

Storage stocks of frozen poultry were at record levels on March 1, and 9 per cent heavier than a year ago. Fowl and all classes of chickens showed increases over last March, while stocks of frozen turkeys and ducks were smaller. Stocks of all classes of frozen poultry declined during February, which is the normal trend. Compared to a year ago, the February reduction of approximately 27 million pounds was slightly less than for the corresponding month a year ago, but approximately 40 per cent more than the previous 5-year February average. Since March 1, withdrawals have continued at about the same rate as a year ago, as indicated by the 35 markets, which decreased approximately 28 million pounds from February 28 to March 28. During the corresponding period last year holdings were reduced 27 million pounds.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Storage Holdings of Poultry**

| Kind | Mar. 1 5-Yr. Avg. 1937-41 | Mar. 1 1941 | Feb. 1 1942 | Mar. 1 1942 | % Change Mar. '41-Mar. '42 |
|---|---|---|---|---|---|
| | Thousand Pounds | | | | |
| Broilers | 10,895 | 7,603 | 12,605 | 10,903 | +43.4 |
| Fryers | 10,679 | 10,811 | 16,059 | 12,802 | +18.3 |
| Roasters | 25,746 | 28,847 | 39,599 | 31,911 | +10.6 |
| Fowls | 22,790 | 28,952 | 37,548 | 31,554 | + 9.0 |
| Turkeys | 42,488 | 59,346 | 59,641 | 55,320 | – 7.8 |
| Ducks | 2,953 | 3,707 | 4,942 | 3,112 | –16.1 |
| Miscellaneous | 20,980 | 14,494 | 20,744 | 19,700 | +36.6 |
| Unclassified | | 9,561 | 14,982 | 13,527 | +41.4 |
| Total | 136,531 | 163,321 | 206,120 | 178,829 | + 9.4 |

## Egg Breaking Operations

Liquid egg production in February by commercial egg breaking plants is estimated at 27,696,000 pounds, compared with 10,571,000 pounds in February last year. Data on utilization showed that 13,626,000 pounds were frozen, compared with 8,140,000 in February last year, and 2,880,000 pounds were used for immediate consumption in liquid form, compared with only 846,000 pounds a year earlier. The remaining amount, 11,190,000 pounds, was used for drying. This amount, plus the eggs broken out by strictly egg drying plants, produced in February 13,851,009 pounds of dried egg compared with only 661,025 pounds in February last year. This production was almost double the total annual production of several years ago.

The record-breaking output of dried eggs in February indicates that the domestic dried egg industry is rapidly approaching the production goal set for it to fulfill war requirements. The industry is gearing itself to produce about 20,000,000 pounds of dried egg per month.

Large quantities of eggs will have to be stored either in frozen form or in shell during the next 5 or 6 months to insure a sufficient supply for full utilization of egg drying facilities during the latter part of 1942. Statistics

**Liquid Egg Production, February 1941-42**

| | | February 1941 | February 1942 | % change in 1942 |
|---|---|---|---|---|
| | | Thousand Pounds | | |
| Whole eggs | | 2,706 | 17,919 | +562 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 1,099 | 3,047 | +177 |
| Egg whites (all descriptions) | | 3,510 | 3,545 | + 1 |
| Egg yolks packed | Without salt, sugar, etc. | 1,195 | 1,246 | + 4 |
| | With sugar | 1,713 | 1,025 | – 40 |
| | With salt | 84 | 388 | +361 |
| | All yolk emulsions, including glycerine | 264 | 526 | + 99 |
| Total | | 10,571 | 27,696 | +162 |

**Dried Egg Production, February 1941-42**

| Commodity | Total Reported February 1942 | Same Firm Comparison | | |
|---|---|---|---|---|
| | | Feb. 1941 | Feb. 1942 | % change in 1942 |
| | Pounds | | Pounds | |
| Whole | 13,342,864 | 79,460 | 13,342,864 | +16,692 |
| Albumen | 92,637 | 95,030 | 92,637 | – 3 |
| Yolks | 415,508 | 486,535 | 415,508 | – 15 |
| Total | 13,851,009 | 661,025 | 13,851,009 | + 1,995 |
| Firms reporting | 47 | 47 | | |

on holdings of frozen and shell eggs this year will, in all probability, be very much out of line with other years. The egg breaking picture in 1942 will be dominated by the requirements for dried egg rather than frozen egg as in past years.

The quantities of eggs being dried this year show a tremendous increase over 1941. This operation has been stimulated by the Government buying program, which in March alone took approximately 27 million pounds of dried eggs, 70 per cent of which was bought during the last half of the month. February purchases totaled 18 million pounds. Purchases of shell eggs in March were approximately 84,000 cases, which is about half the amount bought in February. Small quantities were bought in the South the past month.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Hatchery Operations

Production of baby chicks by commercial hatcheries in February set a new high record for the month, the U. S. Department of Agriculture reports. Output estimated at 95,115,000 chicks was 8 per cent larger than the previous record output of February 1941. The number of eggs set in February was 27 per cent larger than the number set in February last year and the number of chicks booked on March 1 was 45 per cent larger.

Increases in the number of chicks hatched during February were reported in the West North Central, Middle Atlantic, South Central, and New England States, ranging from a 7-per cent increase in the New England States to 37 per cent in the West North Central States. The increase in the West North Central States is significant as this area is the largest poultry-producing area in the United States.

Not all sections of the country reported increases in chicks hatched.

**Eggs Set by Commercial Hatcheries**

| Geographic Divisions | Feb. 1939 | Feb. 1940 | Feb. 1941 | Feb. 1942 | % chg. from Feb. 1941 | Jan.-Feb. Inc. 1941 | Jan.-Feb. Inc. 1942 | % chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 10,208 | 10,717 | 12,940 | 13,909 | + 7 | 23,491 | 25,213 | + 7 |
| Middle Atlantic | 19,904 | 21,145 | 22,363 | 25,199 | +13 | 32,016 | 35,775 | +12 |
| South Atlantic | 14,818 | 13,139 | 18,903 | 20,580 | + 9 | 31,670 | 33,247 | + 5 |
| E. N. Central | 39,781 | 33,391 | 42,627 | 49,086 | +15 | 60,436 | 67,342 | +11 |
| W. N. Central | 43,535 | 37,620 | 48,310 | 76,943 | +49 | 62,094 | 91,360 | +47 |
| South Central | 27,016 | 20,087 | 27,373 | 35,878 | +31 | 43,503 | 51,331 | +18 |
| Mountain | 4,458 | 4,168 | 4,422 | 4,871 | +10 | 6,708 | 7,153 | + 7 |
| Pacific | 17,639 | 14,109 | 15,979 | 17,656 | +10 | 24,753 | 26,631 | + 8 |
| United States | 177,359 | 154,376 | 192,917 | 244,122 | +27 | 284,671 | 338,052 | +19 |

**Chicks Hatched by Commercial Hatcheries**

| Geographic Divisions | Feb. 1939 | Feb. 1940 | Feb. 1941 | Feb. 1942 | % chg. from Feb. 1941 | Jan.-Feb. Inc. 1941 | Jan.-Feb. Inc. 1942 | % chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 6,354 | 5,778 | 8,660 | 9,281 | + 7 | 14,682 | 15,624 | + 6 |
| Middle Atlantic | 10,885 | 7,699 | 10,338 | 11,783 | +14 | 14,299 | 16,303 | +14 |
| South Atlantic | 9,679 | 6,665 | 10,881 | 9,767 | −10 | 18,956 | 18,639 | − 2 |
| E. N. Central | 15,063 | 9,374 | 18,503 | 17,959 | − 3 | 25,653 | 26,512 | + 3 |
| W. N. Central | 15,675 | 8,954 | 14,683 | 20,159 | +37 | 19,448 | 26,290 | +35 |
| South Central | 16,114 | 8,130 | 14,711 | 16,261 | +11 | 20,990 | 23,699 | +13 |
| Mountain | 2,157 | 1,445 | 2,082 | 1,853 | −11 | 2,454 | 2,096 | −15 |
| Pacific | 9,628 | 6,666 | 8,099 | 8,052 | − 1 | 12,668 | 112,836 | + 1 |
| United States | 85,555 | 54,711 | 87,957 | 95,115 | + 8 | 129,150 | 141,999 | +10 |

Decreases were reported in the South Atlantic, East North Central, Mountain, and Pacific States, the decreases ranging from 1 per cent in the Pacific Coast States to 11 per cent in the Mountain States. Much of the decrease in hatchings in the South Atlantic States and East North Central States is due to the decline in the demand for broiler chicks. Hatcheries in these areas during February last year had a very strong demand for chicks for broilers.

All areas of the country reported increases in the number of eggs set, and a large hatch in March can be expected. The number set was particularly heavy in the West North Central States, where an increase of 49 per cent was reported. Orders on March 1 were very large, with all sections of the country showing substantial increases over the number booked on the same date last year. Many hatcheries are booked to full capacity during March and April. It is too early to say whether or not as large a hatch may be expected in May and June of this year as occurred during these months last year.

With the emphasis being placed on egg production this year, hatcheries

**Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing**

| Geographic Divisions | Chicks booked Mar. 1 | % Light Breed hatched | | % Heavy Breed hatched | | Sexing |
|---|---|---|---|---|---|---|
| | % change from Mar. 1, 1941 | Feb. 1941 | Feb. 1942 | Feb. 1941 | Feb. 1942 | % change from Feb. 1941 |
| New England | +28 | 5 | 6 | 95 | 94 | +64 |
| Middle Atlantic | +21 | 29 | 29 | 71 | 71 | +15 |
| South Atlantic | +56 | 10 | 9 | 90 | 91 | +67 |
| E. N. Central | +36 | 17 | 20 | 83 | 80 | −17 |
| W. N. Central | +69 | 29 | 33 | 71 | 67 | +26 |
| So. Central | +75 | 24 | 29 | 76 | 71 | + 9 |
| Mountain | +66 | 58 | 62 | 42 | 38 | −20 |
| Pacific | +39 | 75 | 76 | 25 | 24 | + 7 |
| United States | +45 | 30 | 31 | 70 | 69 | + 8 |

in all areas with the exceptions of the Middle Atlantic and South Atlantic States reported increases in the percentages of light breeds hatched in February compared with February last year. The number of chicks sexed in February was 8 per cent larger than the number sexed a year earlier.

Hatcheries setting turkey eggs were just getting started in February. Sixty-seven plants reported setting 32 per cent more eggs than in February last year. The number of poults booked March 1 for later delivery was also 32 per cent larger. Over 5,000 turkey growers have reported to the Department of Agriculture that they intend to buy 8 per cent more poults for raising this year. All sections of the country show increases in breeder hens this year except the South Central and East North Central States.

## *The Deceptive Egg-Feed Ratio*

Some people are concerned because the price of poultry feed has been advancing. The fact that egg prices also have been higher than a year ago doesn't seem to keep these folks from doing a certain amount of worrying. Perhaps it will contribute to their peace of mind if I point out that poultrymen make more money when prices are high than when prices are low, even if the relationship of feed prices to egg prices remains the same. Let me illustrate.

Assume that 100 pullets are eating 25 pounds of feed a day and laying 4 dozen eggs. Assume, also, that feed is two dollars per 100 and eggs 25 cents a dozen. Then feed goes to three dollars a 100 and eggs to 37½ cents per dozen.

In both cases, 8 dozen eggs are required to pay for 100 pounds of feed ($2.00 divided by 25 equals 8; $3.00 divided by 37.5 equals 8). The feed-egg ratio has not changed. But notice this:

25 pounds feed at $2.00 equals 50 cents (cost of feed for one day)
4 dozen eggs at 25 cents equals $1.00 (value of eggs for one day)
Profit equals 50 cents
25 pounds feed at $3.00 equals 75 cents (cost of feed for one day)
4 dozen eggs at 37½ cents equals $1.50 (value of eggs for one day)
Profit equals 75 cents

—L. E. Weaver, American Agriculturist, March 28, 1942.

A stone duck was used in Babylon as a standard of weight. On it was carved a warning—anyone who tampered with the duck, trying to falsify its weight, would be executed.

—South African Poultry, Pigeon, and Bird Magazine, February, 1942.

## *Moisture is Essential*

Moisture is essential to poultry health. It is of particular importance in brooding and laying houses. Moisture in the wrong place, however, may be dangerous.

Moisture is a normal constituent of air. It is measured in terms of humidity. During the winter months, the moisture content of the air is normally low. Heating the entire brooder room to 90° to 95° Fahrenheit reduces the moisture in the air to a dangerously low level. This artificially dried air causes skin and feather follicle irritation, often resulting in picking in the region of the wing and tail, where feathers first make their appearance. Room temperatures should be kept as low as possible and yet provide comfort for the chicks or poults. Even on cold days, open one or more windows part way to admit fresh, moist air.

The ideal room temperature, even for early brooding, is 70°, provided the temperature at the edge of the hover, and two inches off the floor, is 90° to 95° for the first week. The hover temperature should be lowered about 5° a week.

Hot, dry air is detrimental to feed consumption resulting in a slow rate of growth. Rate of feathering also is influenced by the amount of moisture in the air. Bare backs, therefore, are more easily prevented when the room temperature is kept near 70°.

Excessive moisture in the litter should be guarded against. Raking or stirring once a day will help keep the litter dry and thus avoid unnecessary changing. Water fountains and feeders should be so constructed and placed that the litter will not become damp from spillage.

Disease germs, molds, and parasites thrive in damp places. It is essential, therefore, that a brooder house be both clean and dry before a disinfectant is applied. There is no substitute for deep, dry litter in both brooder and laying houses. In the absence of a disease outbreak, unchanged, deep, dry litter is more practical and more "sanitary" than a thin litter changed at weekly intervals.

—Cliff D. Carpenter, American Poultry Journal, April, 1942.

MAX SLAKOFF, Philadelphia butcher, had to call at the bank to get the chicken he intended to have for dinner, a news item relates. When Slakoff closed his shop at the end of the day's work, he took along two sacks, one containing the day's cash receipts, while the other a dressed chicken. Somehow or other, the chicken found its way into the bank's night depository, and the cash wound up on the kitchen table.

# RESULTS OF LAYING TESTS

Harco Orchards' Rhode Island Red pen at Rhode Island earned 342.80 points during the month of February to pass the Holser's Valley Farm Leghorn entry at Storrs and step into top position among all test pens in the country. The 342.80 points were earned on 316 eggs, which means that the average dozen of eggs laid by the Harco entry during the month weighed 25.68 ounces.

High pen for the month was George M. Heberer's White Leghorn entry at Texas, which shelled out 336 eggs worth 362.15 points. J. A. Hanson's Leghorns led in production for the month at three tests.

Harco Orchards also has the high hen to date, a Rhode Island Red at Maine, which has laid 145 eggs in 151 days for a point score of 159.25. An E. B. Parmenter Rhode Island Red at Passaic, N. J., is in second place with a score of 156.70 points on 144 eggs, and a Rinker Poultry Farm White Leghorn at Pennsylvania is third with 156.45 points on 145 eggs.

The Arizona contest holds a lead of 1 point over the Pennsylvania test in contest competition. Rhode Island is close behind Pennsylvania, in third place, and several other tests are still very much in the running.

Mortality among all birds entered is 5.74 per cent this year, compared to 6.58 per cent on March 1, 1941. The average production is up about 2 eggs and 2 points over that of a year ago, but production of the top-ranking hens and pens is not quite up to what it was on the same date in 1941.

## Twenty High Pens, All Breeds, to March 1—(151 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 1671 | 1787.45 | Rhode Island |
| Holser's Valley Farm | White Leghorn | 1681 | 1773.50 | Storrs |
| W. H. Wilson | Rhode Island Red | 1654 | 1752.85 | Georgia |
| C. C. Hersey | Rhode Island Red | 1690 | 1707.95 | Storrs |
| Rapp's Poultry Farm | White Leghorn | 1618 | 1700.75 | Hunterdon, N. J. |
| J. A. Hanson | White Leghorn | 1646 | 1696.80 | Georgia |
| Jack O'Harrow | White Leghorn | 1655 | 1683.40 | Texas |
| Peckham Farm | Rhode Island Red | 1594 | 1682.75 | Rhode Island |
| George A. Pearce | New Hampshire | 1614 | 1682.00 | Hunterdon, N. J. |
| Hillview Farm | Rhode Island Red | 1639 | 1676.65 | California |
| Kauder's Pedigreed Leghorns | White Leghorn | 1553 | 1675.95 | Texas |
| Harco Orchards | Rhode Island Red | 1565 | 1674.00 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 1600 | 1673.45 | Storrs |
| J. J. Warren | Rhode Island Red | 1590 | 1671.45 | Rhode Island |
| Kauder's Pedigreed Leghorns | White Leghorn | 1566 | 1671.25 | Georgia |
| Joachim Breeding Farm | New Hampshire | 1593 | 1669.20 | Storrs |
| J. J. Warren | Rhode Island Red | 1582 | 1668.40 | Maine |
| Ford's Riverbank Farm | Rhode Island Red | 1642 | 1666.30 | Storrs |
| Robert C. Cobb | Rhode Island Red | 1632 | 1663.45 | Storrs |
| W. A. Seidel | White Leghorn | 1599 | 1661.55 | Texas |

## High Pen in Each Test to March 1—(151 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 1671 | 1787.45 | Rhode Island |
| Holser's Valley Farm | White Leghorn | 1681 | 1773.50 | Storrs |
| W. H. Wilson | Rhode Island Red | 1654 | 1752.85 | Georgia |
| Rapp's Poultry Farm | White Leghorn | 1618 | 1700.75 | Hunterdon, N. J. |
| Jack O'Harrow | White Leghorn | 1655 | 1683.40 | Texas |
| Hillview Poultry Farm | Rhode Island Red | 1639 | 1676.65 | California |
| J. J. Warren | Rhode Island Red | 1582 | 1668.40 | Maine |
| E. B. Parmenter | Rhode Island Red | 1631 | 1658.10 | Passaic, N. J. |
| Babcock's Hatchery | White Leghorn | 1690 | 1652.65 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 1538 | 1635.50 | Missouri |
| Nelson's Leghorn Breed. Fm. | White Leghorn | 1531 | 1616.20 | Arizona |
| J. A. Hanson | White Leghorn | 1559 | 1615.30 | Western New York |
| Crescent Farms | New Hampshire | 1480 | 1548.20 | Florida |
| J. J. Warren | Rhode Island Red | 1421 | 1449.00 | Michigan |
| Foreman Poultry Farm | White Leghorn | 1526 | 1444.20 | Oklahoma |
| Foreman Poultry Farm | White Leghorn | 1367 | 1430.05 | Central New York |
| G. B. Treadwell | Rhode Island Red | 1389 | 1428.00 | Long Island |

## High Pen in Each Test for February

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| George M. Heberer | White Leghorn | 336 | 362.15 | Texas |
| J. A. Hanson | White Leghorn | 326 | 350.75 | Storrs |
| Crooks Farms | Rhode Island Red | 329 | 350.15 | Pennsylvania |
| Harco Orchards | Rhode Island Red | 316 | 342.80 | Rhode Island |
| J. A. Hanson | White Leghorn | 310 | 333.10 | Georgia |
| E. B. Parmenter | Rhode Island Red | 304 | 329.65 | California |
| Foreman Poultry Farm | White Leghorn | 299 | 327.05 | Missouri |
| Thomas Mettler | Rhode Island Red | 315 | 325.85 | Passaic, N. J. |
| Lindstrom Poultry Farm | White Leghorn | 305 | 320.70 | Arizona |
| Swift & Co. Hatchery | New Hampshire | 298 | 317.65 | Oklahoma |
| George A. Pearce | New Hampshire | 293 | 316.60 | Hunterdon, N. J. |
| Martin Weitzler | White Leghorn | 300 | 315.25 | Long Island |
| Edgar Smith | Rhode Island Red | 302 | 315.05 | Maine |
| J. A. Hanson | White Leghorn | 284 | 309.70 | Western New York |
| Lux Leghorn Land Farm | White Leghorn | 284 | 303.40 | Florida |
| Roselawn Poultry Farm | White Leghorn | 279 | 293.30 | Central New York |
| Grandview | White Leghorn | 280 | 288.40 | Michigan |

## High Pen in Each Breed to March 1—(151 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 1671 | 1787.45 | Rhode Island |
| Holser's Valley Farm | White Leghorn | 1681 | 1773.50 | Storrs |
| George A. Pearce | New Hampshire | 1614 | 1682.00 | Hunterdon, N. J. |
| J. W. Schaible | Barred Rock | 1616 | 1562.95 | Hunterdon, N. J. |
| Harvey E. Taylor | White Wyandotte | 1470 | 1512.55 | Texas |
| Bagby Poultry Farm | White Rock | 1377 | 1443.15 | Texas |
| Ernest Pedigo | Australorp | 1279 | 1332.20 | Arizona |
| Raymond S. Thomas | Ancona | 1222 | 1232.10 | Pennsylvania |
| Harry L. Phillips | Columbian Rock | 1110 | 1182.50 | Missouri |
| Imperial Breeding Farm | White Giant | 1125 | 1133.80 | Maine |
| T. D. Brown | White Minorca | 1083 | 1128.10 | Texas |
| Horne's Hatchery | Black Minorca | 975 | 1052.90 | Texas |
| Maine Test | Cross | 1024 | 1022.90 | Maine |
| Miami Hatchery | Buff Rock | 994 | 974.10 | Michigan |
| Iowa Master Breeding | Buff Orpington | 977 | 896.05 | Texas |
| Henry F. Waitt | Buff Minorca | 893 | 856.55 | Maine |
| Imperial Breed. Farm | New Hampshire White | 795 | 847.25 | Missouri |
| C. A. Richardson | Buff Leghorn | 891 | 795.30 | Hunterdon, N. J. |
| Wellington Wells | Silver Laced Wyandotte | 771 | 682.70 | Maine |
| Philip Maddux | Black Leghorn | 559 | 515.55 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 523 | 498.60 | Florida |

## High Hen in Each Breed to March 1—(151 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 145 | 159.25 | Maine |
| Rinker Poultry Farm | White Leghorn | 145 | 156.45 | Pennsylvania |
| Robert C. Cobb | Barred Rock | 144 | 149.80 | Storrs |
| George A. Pearce | New Hampshire | 148 | 149.75 | Hunterdon, N. J. |
| Paul Hansen | Australorp | 130 | 138.50 | California |
| Carter-Dunham | White Rock | 128 | 138.40 | Georgia |
| Harvey E. Taylor | White Wyandotte | 125 | 134.60 | Texas |
| Raymond S. Thomas | Ancona | 120 | 131.10 | Pennsylvania |
| Imperial Breeding Farm | White Giant | 120 | 128.30 | Maine |
| Maine Test | Cross | 119 | 123.15 | Maine |
| Harry L. Phillips | Columbian Rock | 114 | 119.70 | Missouri |
| T. D. Brown | White Minorca | 113 | 117.70 | Texas |
| Miami Hatchery | Buff Rock | 111 | 117.20 | Michigan |
| Imperial Poultry Fm. | New Hampshire White | 108 | 113.90 | Missouri |
| Henry F. Waitt | Buff Minorca | 111 | 113.15 | Maine |
| Horne's Hatchery | Black Minorca | 100 | 106.30 | Texas |
| Iowa Master Breeders | Buff Orpington | 103 | 102.85 | Texas |
| Chas. A. Richardson | Buff Leghorn | 99 | 85.35 | Hunterdon, N. J. |
| Donald Chandler | Silver Laced Wyandotte | 89 | 81.85 | Maine |
| Philip Maddux | Black Leghorn | 81 | 71.05 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 60 | 60.80 | Florida |

## High Hen in Each Test to March 1—(151 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 145 | 159.25 | Maine |
| E. B. Parmenter | Rhode Island Red | 144 | 156.70 | Passaic, N. J. |
| Rinker Poultry Farm | White Leghorn | 145 | 156.45 | Pennsylvania |
| George A. Pearce | Rhode Island Red | 141 | 153.50 | Hunterdon, N. J. |
| Harco Orchards | Rhode Island Red | 140 | 153.00 | Rhode Island |
| A. B. Gillam | White Leghorn | 141 | 150.50 | Georgia |
| J. A. Hanson | White Leghorn | 147 | 150.40 | Storrs |
| Missouri Valley Poul. Fm. | Rhode Island Red | 137 | 148.95 | Arizona |
| J. J. Warren | Rhode Island Red | 135 | 148.45 | Western New York |
| J. K. Bedell | White Leghorn | 139 | 148.25 | Florida |
| Jack O'Harrow | White Leghorn | 138 | 147.85 | Texas |
| J. J. Warren | Rhode Island Red | 140 | 146.75 | California |
| J. J. Warren | Rhode Island Red | 137 | 146.55 | Michigan |
| Foreman Poultry Farm | White Leghorn | 140 | 145.35 | Missouri |
| Foreman Poultry Farm | White Leghorn | 129 | 140.90 | Central New York |
| Joachim Breeding Farm | New Hampshire | 127 | 139.30 | Long Island |
| Foreman Poultry Farm | White Leghorn | 137 | 138.00 | Oklahoma |

## Twenty High White Leghorn Pens to March 1—(151 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Holser's Valley Farm | 1681 | 1773.50 | Storrs |
| Rapp's Poultry Farm | 1618 | 1700.75 | Hunterdon, N. J. |
| J. A. Hanson | 1646 | 1696.80 | Georgia |
| Jack O'Harrow | 1655 | 1683.40 | Texas |
| Kauder's Pedigreed Leghorns | 1553 | 1675.95 | Texas |
| Kauder's Pedigreed Leghorns | 1600 | 1673.45 | Storrs |
| Kauder's Pedigreed Leghorns | 1566 | 1671.25 | Georgia |
| W. A. Seidel | 1599 | 1661.55 | Texas |
| Babcock's Hatchery | 1690 | 1652.65 | Pennsylvania |
| Kauder's Pedigreed Leghorns | 1583 | 1647.75 | Georgia |
| Foreman Poultry Farm | 1538 | 1635.50 | Missouri |
| J. A. Hanson | 1558 | 1627.35 | Pennsylvania |
| Nelson's Leghorn Breeding Farm | 1531 | 1616.20 | Arizona |
| J. A. Hanson | 1559 | 1615.30 | Western New York |
| Burr's Poultry Farm | 1592 | 1610.55 | Pennsylvania |
| Foreman Poultry Farm | 1534 | 1609.75 | Texas |
| W. A. Seidel | 1557 | 1605.15 | Texas |
| Babcock's Hatchery | 1600 | 1595.75 | Pennsylvania |
| Rapp's Poultry Farm | 1530 | 1594.80 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | 1489 | 1590.55 | Pennsylvania |

## Twenty High Rhode Island Red Pens to March 1—(151 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Harco Orchards | 1671 | 1787.45 | Rhode Island |
| W. H. Wilson | 1654 | 1752.85 | Georgia |
| W. H. Wilson | 1693 | 1732.25 | Georgia |
| C. C. Hersey | 1690 | 1707.95 | Storrs |
| Peckham Farm | 1594 | 1682.75 | Rhode Island |
| Hillview Poultry Farm | 1639 | 1676.65 | California |
| Harco Orchards | 1565 | 1674.00 | Storrs |
| J. J. Warren | 1590 | 1671.45 | Rhode Island |
| J. J. Warren | 1582 | 1668.40 | Maine |
| Ford's Riverbank Farm | 1642 | 1666.30 | Storrs |
| Robert C. Cobb | 1632 | 1663.45 | Storrs |
| E. B. Parmenter | 1631 | 1658.10 | Passaic, N. J. |
| Crooks Farm | 1595 | 1651.75 | Pennsylvania |
| Thomas H. Mettler | 1721 | 1648.40 | Storrs |
| G. B. Treadwell | 1593 | 1633.60 | Maine |
| E. B. Parmenter | 1581 | 1622.75 | Storrs |
| R. W. Anderson | 1499 | 1615.50 | Rhode Island |
| E. B. Parmenter | 1507 | 1611.05 | Storrs |
| David T. Cohen | 1535 | 1604.40 | Georgia |
| Louis Schaible | 1576 | 1589.55 | Hunterdon, N. J. |

## Twenty High New Hampshire Pens to March 1—(151 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| George A. Pearce | 1614 | 1682.00 | Hunterdon, N. J. |
| Joachim Breeding Farm | 1593 | 1669.20 | Storrs |
| George A. Pearce | 1594 | 1654.25 | Storrs |
| Joachim Breeding Farm | 1498 | 1564.25 | Hunterdon, N. J. |
| Crescent Farms | 1480 | 1548.20 | Florida |
| James H. Horne | 1460 | 1525.35 | Storrs |
| T. J. Harrold | 1501 | 1493.80 | Georgia |
| Ebenwood Farm | 1397 | 1482.25 | Rhode Island |
| Hubbard Farms | 1446 | 1476.75 | Storrs |
| Hubbard Farms | 1426 | 1455.10 | Western New York |
| W. G. Ashby | 1347 | 1448.85 | Arizona |
| Hubbard Farms | 1458 | 1448.30 | Pennsylvania |
| Pine Mountain Valley Farm | 1425 | 1442.90 | Georgia |
| Hubbard Farms | 1434 | 1438.25 | Georgia |
| Pine Top Poultry Farms | 1349 | 1434.20 | Rhode Island |
| James H. Horne | 1415 | 1431.15 | Pennsylvania |
| Joachim Breeding Farm | 1427 | 1430.90 | Pennsylvania |
| Pine Mountain Valley Farm | 1423 | 1421.80 | Georgia |
| Del Rio Farm | 1300 | 1403.80 | Arizona |
| Del Rio Farm | 1315 | 1402.10 | Arizona |

## Twenty High Barred Plymouth Rock Pens to March 1—(151 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| J. W. Schaible | 1616 | 1562.95 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 1530 | 1526.35 | Storrs |
| Foster Jameson | 1434 | 1495.85 | Maine |
| Dryden Poultry Breeding Farm | 1460 | 1484.90 | Storrs |
| Harco Orchards | 1429 | 1468.25 | Rhode Island |
| Angus J. Urquhart | 1495 | 1462.85 | Maine |
| Harco Orchards | 1553 | 1456.70 | Maine |
| Dryden Poultry Breeding Farm | 1472 | 1442.70 | Pennsylvania |
| Peachblow Farm | 1432 | 1425.40 | Maine |
| Hockhockson Farm | 1372 | 1413.75 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 1431 | 1410.85 | California |
| Dryden Poultry Breeding Farm | 1421 | 1407.90 | California |
| Penn's Poultry Breeding Farm | 1409 | 1402.05 | Texas |
| Pine Top Poultry Farms | 1322 | 1400.45 | Rhode Island |
| Vincent Nasto | 1410 | 1379.60 | Hunterdon, N. J. |
| Riley Poultry Farm | 1364 | 1349.10 | Pennsylvania |
| Fisher Orchards | 1283 | 1347.50 | Pennsylvania |
| David T. Cohen | 1332 | 1342.50 | Pennsylvania |
| Harco Orchards | 1279 | 1328.20 | Storrs |
| Angus J. Urquhart | 1336 | 1325.45 | Passaic, N. J. |

## Twenty High White Plymouth Rock Pens to March 1—(151 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Bagby Poultry Farm | 1377 | 1443.15 | Texas |
| Riley Poultry Farm | 1381 | 1366.60 | Georgia |
| Missouri Valley Poultry Farm | 1295 | 1357.70 | Texas |
| Missouri Valley Poultry Farm | 1346 | 1350.00 | Georgia |
| Riley Poultry Farm | 1370 | 1348.50 | Storrs |
| Carter-Dunham | 1247 | 1324.15 | Texas |
| Ralph D. Young | 1311 | 1320.85 | Maine |
| Holtzapple Poultry Farm | 1324 | 1319.95 | Georgia |
| Carter-Dunham | 1226 | 1292.55 | Georgia |
| Booth Farms & Hatchery | 1248 | 1271.85 | Texas |
| Four Winds Farm | 1250 | 1263.25 | Michigan |
| Carter-Dunham | 1225 | 1263.00 | Pennsylvania |
| A. C. Lawton | 1263 | 1260.75 | Rhode Island |
| Pay Streak Hatchery | 1220 | 1240.20 | Pennsylvania |
| R. K. Shearer | 1293 | 1228.85 | Pennsylvania |
| Inspiration Acres | 1299 | 1222.30 | Florida |
| Imperial Breeding Farm | 1245 | 1209.50 | Storrs |
| Drumm Egg Farm | 1187 | 1208.10 | Georgia |
| A. C. Lawton | 1178 | 1207.80 | Storrs |
| Kerr Chickeries | 1205 | 1204.30 | Maine |

## Average Production and Mortality, Each Test, to March 1—(151 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for Feb | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Arizona | 390 | 99.52 | 103.90 | 24.88 | 1.15 | 5.39 |
| Pennsylvania | 1,105 | 100.59 | 102.90 | 24.42 | 3.53 | 6.16 |
| Rhode Island | 611 | 98.68 | 102.25 | 24.72 | 1.64 | 7.70 |
| Hunterdon, N. J. | 624 | 100.18 | 101.22 | 24.20 | 1.77 | 6.26 |
| Georgia | 1,326 | 99.92 | 99.97 | 24.00 | 1.59 | 6.04 |
| Storrs | 1,352 | 97.13 | 99.16 | 24.40 | 1.70 | 4.59 |
| Texas | 1,456 | 94.09 | 95.92 | 24.38 | 1.17 | 4.68 |
| Florida | 1,118 | 88.51 | 89.27 | 24.18 | 1.34 | 5.64 |
| Passaic, N. J. | 871 | 87.72 | 88.47 | 24.16 | 1.96 | 8.39 |
| Maine | 988 | 88.57 | 87.43 | 23.74 | 1.72 | 4.66 |
| California | 598 | 84.77 | 84.88 | 24.02 | 1.68 | 5.36 |
| Western New York | 975 | 77.83 | 79.86 | 24.52 | 1.75 | 4.42 |
| Oklahoma | 650 | 76.50 | 76.01 | 23.52 | 2.92 | 6.00 |
| Long Island | 1,092 | 73.10 | 72.31 | 23.78 | 1.47 | 5.32 |
| Missouri | 780 | 67.33 | 70.77 | 25.02 | 1.54 | 5.65 |
| Michigan | 871 | 72.22 | 70.11 | 23.40 | 1.50 | 8.96 |
| Central New York | 1,066 | 68.74 | 69.94 | 24.34 | 1.03 | 4.41 |
| All Tests | 15,873 | 86.78 | 87.90 | 24.21 | 1.73 | 5.74 |

# *Turkey Air Conditioner*

An ingenious device worked out by Grant Brown keeps air in a battery brooder house where poults are started properly humidified and tempered. When weather in Arapahoe county, Colorado, is cold and heat is needed, fans bring in fresh air and blow it downward over jacketed stoves, on top of which are water pans to supply moisture. The air, which is passed between the stove and its surrounding jacket, is discharged at floor level so heat is uniform from floor to ceiling. When hot weather lifts inside temperature above the comfort point for later broods, fans are used to cool the house.

—Capper's Farmer, April, 1942.

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Vol. 4, No. 41 May 15, 1942

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## The Wartime Egg Production Goal—Why it is Needed, How it is Supported

By ROY F. HENDRICKSON
Agricultural Marketing Administrator

*Condensed from a Report*

IN some sections of the country, there has been uncertainty recently regarding the egg situation, especially as to the prices producers have been receiving for their eggs and their relationship to parity. A review of the facts concerning the egg situation and egg prices, therefore, seems desirable at this time.

Food Production goals announced last September for all essential foodstuffs were set to assure production sufficient to meet domestic consumer demands, plus demands for the armed forces of the United States, needs of other countries receiving aid under Lend-Lease, and aid to low income families in this country. In January, following Pearl Harbor, the goals were revised upward to meet every possible demand that could be anticipated for the United States and its allies under wartime conditions.

The National goal for eggs in 1942 calls for 4,200,000,000 dozen – 3,822,417,000 dozen farm production and the rest non-farm production. The farm production goal is a 13 per cent increase over the record 1941 farm egg production. The national egg goal is considered sufficient to: (1) Give domestic con-

From a report to heads of the Agricultural Adjustment Agency, Farm Security Administration, and Extension Service.

sumers about the same number of eggs per capita as in 1939-40; (2) meet the added needs of our men in the armed services, who will get about 5 dozen more eggs apiece than they did in civilian life; and (3) aid our allies.

After national goals were announced last fall, a farm canvass was made throughout the country. The extent of production that might be expected from each farmer was determined. Results were broken down on a state basis and this information was used in setting goal programs for each state and each county after the United States entered the war.

These local goals were established so that farmers would know definitely what was expected of them. From there, it became the job of the producer himself to determine what course he would have to take to do his share toward meeting the established goal. The Department of Agriculture does not desire that any of the needed foodstuffs be produced without regard to the availability of markets. The largest increases in egg production are needed for the present in those areas where egg-drying plants are located and where adequate facilities exist for assembling, grading, and marketing shell eggs. The state goals for egg production in 1942 are shown in Table 1.

**TABLE 1—Suggested Goals for 1942: Egg Production on Farms**

| State | Expected production for 1942 | Estimated Production 1941 | Estimated Production 1940 | Percentage change 1942 over 1941 |
|---|---|---|---|---|
| | 1,000 dozen | 1,000 dozen | 1,000 dozen | Per cent |
| Ariz. | 5,000 | 4,417 | 4,833 | 13 |
| Calif. | 155,417 | 141,917 | 150,833 | 10 |
| Colo. | 33,583 | 29,750 | 30,833 | 13 |
| Idaho | 24,417 | 22,333 | 21,667 | 9 |
| Mont. | 19,833 | 18,500 | 17,417 | 7 |
| Nev. | 2,500 | 2,250 | 2,083 | 11 |
| N. Mex. | 9,250 | 8,250 | 8,333 | 12 |
| Oreg. | 32,167 | 29,083 | 29,583 | 11 |
| Utah | 26,333 | 22,917 | 21,333 | 15 |
| Wash. | 67,500 | 62,250 | 60,250 | 8 |
| Wyo. | 6,583 | 6,167 | 6,250 | 7 |
| Total | 382,583 | 347,834 | 353,415 | 10 |
| Ill. | 186,917 | 169,250 | 160,333 | 10 |
| Ind. | 147,667 | 131,583 | 126,000 | 12 |
| Iowa | 255,167 | 230,750 | 213,833 | 11 |
| Kans. | 154,583 | 133,250 | 126,667 | 16 |
| Mich. | 121,167 | 112,667 | 107,917 | 8 |
| Minn. | 196,000 | 168,250 | 157,167 | 16 |
| Mo. | 191,333 | 167,917 | 163,667 | 14 |
| Nebr. | 120,083 | 104,417 | 94,083 | 15 |
| N. Dak. | 37,417 | 32,500 | 30,167 | 15 |
| Ohio | 218,417 | 199,833 | 187,500 | 9 |
| S. Dak. | 59,333 | 52,500 | 48,583 | 13 |
| Wis. | 179,583 | 161,833 | 150,333 | 11 |
| Total | 1,867,667 | 1,664,750 | 1,566,250 | 12 |
| Conn. | 33,583 | 30,417 | 28,667 | 10 |
| Del. | 11,083 | 10,083 | 9,667 | 10 |
| Me. | 25,167 | 23,000 | 20,833 | 9 |
| Md. | 31,917 | 29,083 | 29,250 | 10 |
| Mass. | 42,167 | 37,667 | 36,000 | 12 |
| N. H. | 16,583 | 15,000 | 14,333 | 11 |
| N. J. | 65,667 | 60,000 | 57,583 | 9 |
| N. Y. | 173,583 | 158,667 | 151,667 | 9 |
| Pa. | 194,333 | 178,417 | 170,167 | 9 |
| R. I. | 5,417 | 4,750 | 4,250 | 14 |
| Vt. | 12,667 | 11,333 | 10,750 | 12 |
| W. Va. | 36,667 | 34,250 | 34,917 | 7 |
| Total | 648,834 | 592,667 | 568,084 | 9 |
| Ala. | 53,000 | 44,083 | 40,583 | 20 |
| Ark. | 60,250 | 50,250 | 48,417 | 20 |
| Fla. | 18,750 | 15,583 | 16,333 | 20 |
| Ga. | 50,917 | 43,917 | 44,583 | 16 |
| Ky. | 82,833 | 72,000 | 69,917 | 15 |
| La. | 27,083 | 23,917 | 23,500 | 13 |
| Miss. | 43,750 | 36,167 | 34,500 | 21 |
| N. C. | 64,250 | 58,583 | 55,833 | 10 |
| Okla. | 102,000 | 85,000 | 77,583 | 20 |
| S. C. | 29,333 | 24,583 | 23,750 | 19 |
| Tenn. | 80,417 | 68,417 | 58,917 | 18 |
| Tex. | 226,333 | 184,833 | 178,250 | 22 |
| Va. | 84,417 | 80,083 | 80,000 | 5 |
| Total | 923,333 | 787,416 | 752,166 | 17 |
| **U. S. Total** | **3,822,417** | **3,392,667** | **3,239,915** | 13 |

## Dried Eggs

In view of the limited space available for shipment of Lend-Lease foods to England, it is necessary to ship most of the eggs the British need in dried form. A case of shell eggs for export weighs 60 pounds; its equivalent in dried eggs weighs only 11 pounds. Thus we save tremendously in precious shipping capacity and send our allies a food which contains all the nutrients found in shell eggs.

Early in 1941, there were 16 egg-drying plants in this country which had been producing less than 10 million pounds of dried eggs a year. England alone needed more dried eggs than these plants were producing; so at the beginning of the Lend-Lease program, plans were made to increase drying plant capacity. Existing plants formerly operated only from mid-March to July, the season of flush production. By placing the same plants in operation throughout the year 22 hours a day, annual production was stepped up to between 45 and 50 million pounds. In addition, approximately 70 new plants were placed in operation in the United States, and our present capacity approaches 225 million pounds a year.

## Shell and Frozen Eggs

Eggs in dried form are not the only type required by the British, however. They also want quantities of frozen and shell eggs when shipping facilities permit sending them. Frozen eggs must and shell eggs should be shipped under refrigeration. Limited shipping space of this type keeps shipments to a minimum at the present time.

To insure the arrival of shell eggs in Great Britain in good condition, the Department of Agriculture set up export grades which differ from the U. S. wholesale grade in that the eggs must be full candled and very small tolerance is allowed for off-grade eggs. New methods of handling had to be developed to carry eggs from U. S. farms to British breakfast tables in good condition.

The 1942 goal for farm-produced eggs exceeds the estimated 1941 production by 371 million dozen and 1940 production by 571 million dozen. Recent war developments have stepped up our allies' requests to between 600 and 750 million dozen eggs. More eggs will be removed for Lend-Lease than the increase called for by the revised production goal.

### Increased Production Supported

In September, when Secretary Wickard announced goals for expanding production of needed foods, he also announced a price support program designed to protect the average producer against a low market. He stated that the Department of Agriculture would support prices to producers for certain agricultural commodities, including eggs, at not less than 85 per cent of parity during the period ending December 31, 1942. In January, this price supporting program was extended through June 30, 1943.

### Egg Prices Vary Between States

Parity is a national figure and is developed from the U. S. average farm price. To say that the average farm price of eggs in March was 25.8 cents, and 99 per cent of parity, does not mean that every farmer in every state did or should have received 25.8 cents per dozen. Local prices are affected by quality of product, nearness to market, whether the state is a surplus or deficit producing area, and other factors. State variations from the national average price are always present.

In March 1942, there were 32 states with an average price below the 25.8-cent U. S. average egg price and 16 with a price over the average. The lowest average state egg price was 20.7 cents per dozen and the highest was 33.4 cents per dozen, a difference of 12.7 cents.

A year earlier, in March 1941, average U. S. farm egg price was 16.4 cents. There were 24 states below the average and 24 above. The lowest average state egg price was 13.2 cents per dozen and the highest 25.3 cents, a spread of 12.1 cents.

As can be seen, the average U. S. farm egg prices for March 1942 was 57 per cent higher than for the same month in 1941.

### Egg Prices Vary Within States

Just as average state egg prices vary between different states, so prices received by different farmers within a state vary. The reasons are the same—variations in quality, types of outlets utilized, surplus and deficit areas within states. It cannot be expected that every farmer will receive the same price. Some farmers can sell directly to consumers. Others produce eggs for hatcheries, follow high production standards with well-bred flocks, and obtain a premium. Some farmers, because they sell to an outlet which in turn sells to other outlets, must naturally expect to take less for their product. No market structure can assure all farmers the same price for eggs.

A survey made in one state in January 1942 showed that farmers were receiving all the way from 15 to 55 cents per dozen. During the same period the mid-month farm price report for that state showed the average farm price was 32.7 cents. These extremes of price variations are not peculiar to the present time. Surveys of prices in states during past years have shown similar conditions.

### Parity Prices Change

The fact that egg prices and, consequently, egg parity prices vary from month to month is overlooked by many people. This variation is illustrated in Table 2, which shows the average farm price of eggs and the price at 85 per cent and 100 per cent of parity for eggs in the U. S., by months, during the last two years.

### Price Support Programs

The removal of huge quantities of eggs for Lend-Lease purposes should in itself result in prices above the 85 per cent level. Other programs of the Agricultural Marketing Administration have been and can be put into effect as additional means of assuring such prices. These programs cannot be expected to assure 85 per cent of parity prices to every farmer at every market every day of the year. They do serve, however, to give considerable assistance toward improving marketing conditions and prices to farmers.

Eggs are carried on the list of foods available under the Food

**TABLE 2—Average Farm Price of Eggs, and Parity Levels Compared**

| | 1940 | | | 1941 | | |
|---|---|---|---|---|---|---|
| | U.S. Farm Price | 85 per cent of Parity | 100 per cent of Parity | U.S. Farm Price | 85 per cent of Parity | 100 per cent of Parity |
| | Cents Per Dozen | Per Dozen | Per Dozen | Cents Per Dozen | Per Dozen | Per Dozen |
| Jan. | 18.3 | 22.4 | 26.8 | 19.7 | 25.3 | 26.4 |
| Feb. | 20.2 | 20.6 | 24.3 | 16.8 | 23.6 | 24.2 |
| Mar. | 15.4 | 19.2 | 22.6 | 16.4 | 19.3 | 22.7 |
| Apr. | 15.0 | 19.0 | 22.3 | 19.7 | 19.3 | 22.7 |
| May | 15.1 | 18.7 | 22.0 | 20.1 | 19.3 | 22.7 |
| June | 14.4 | 18.4 | 21.7 | 23.2 | 19.0 | 22.4 |
| July | 16.4 | 20.7 | 24.3 | 25.6 | 21.8 | 25.7 |
| Aug. | 17.2 | 22.3 | 26.2 | 26.8 | 24.1 | 28.3 |
| Sept. | 21.0 | 26.2 | 30.8 | 30.3 | 28.6 | 33.6 |
| Oct. | 23.7 | 29.2 | 34.4 | 31.8 | 32.7 | 38.5 |
| Nov. | 26.2 | 32.7 | 38.5 | 35.5 | 36.8 | 43.3 |
| Dec. | 26.8 | 29.4 | 34.6 | 34.1 | 32.4 | 38.1 |

Stamp Program, by which over a million cases of eggs a year are being moved through regular food dealers distribution channels to relief clients.

### Watch Large Markets

In buying eggs for Lend-Lease and for other purposes, AMA endeavors to arrange its purchases so that they will maintain market prices. Two large markets, New York and Chicago, are looked to by egg handlers all over the country as a guide for paying and selling prices, and to these markets a great part of egg surpluses find their way. Therefore whenever these markets are at levels which would not reflect to production areas prices at or above 85 per cent of parity, AMA purchases are made on Mercantile Exchanges in these markets.

This presents a quick, easy, and fairly effective way of finding and removing price-depressing surpluses improving prices, or preventing or slowing down further declines. At times only certain grades of eggs are in excess and this method makes it easy to find out what grades are in need of removal. Purchases have been made on these markets, particularly at New York, where prices have not been as favorable in comparison with Chicago prices as has been usual in recent years. It is not always possible to maintain normal price spreads between grades, but every effort is made to do so in purchase operations.

The offer and acceptance method of purchasing is another way to aid in obtaining better egg prices. On Monday and Thursday, any egg handler, private or cooperative, may make offerings to the Federal Surplus Commodities Corporation in the Agricultural Marketing Administration. In the Southeastern States, where carlot handlers are fewer in number than in other areas, offers may be made in lots of 100 cases or more of U. S. wholesale grades, No. 4 Standard or better. In all other areas, offers may be made in lots of 400 to 600 cases (car lots) of U. S. wholesale grades, No. 1 Standard or better.

### Southern Buying Program

Other programs are being developed by AMA as rapidly as is possible and practical, particularly those to aid producers where market facilities are inadequate or poorly developed. One of these is a Southeastern States program which has already gone into effect in several states. This provides for cold storage warehouses to offer their services as outlets to receive eggs of U. S. Wholesale grades No. 4 Standard or better in lots of 10 or more cases. Eggs are purchased on certain days at announced prices. This affords an opportunity for small cooperatives, small dealers, hatcherymen, and others to provide an outlet for farmers. One beneficial effect is that attention is called to the inadequacy of market facilities. Expansion of present facilities, entrance of new marketing or buying agencies, or development of cooperative marketing is encouraged.

In recent months, egg producers have begun to realize more fully that production is only one part of a sound agricultural program and that efficient, economical marketing is the other important half. In many sections of the United States, egg marketing methods should be improved for the benefit of all concerned. The war situation provides opportunity to do away with the inefficient methods of the past and to work out efficient methods of marketing that will require less handling and bring the farmer better returns. This is a job that must be undertaken in the producing areas themselves, and one which cooperative organizations can give invaluable assistance in developing.

### Parity Prices for Chickens

In the announced price-supporting policy of the Secretary of Agriculture, chickens (excluding broilers) are included with eggs, the reason being that it is necessary to have adequate flocks in order to have large egg production.

During the past 12 months, U. S. farm prices for poultry have been averaging well above 85 per cent of parity. Parity for chickens is computed in the same way as parity for eggs, except that an index of seasonal variation does not have to be used, since changes from month to month are considered to be so slight that they can be ignored. Just as in the case of eggs, average farm chicken prices vary between states, and prices to farmers vary within states.

It is believed that any increase in market chickens, resulting from expansion in egg production, will be absorbed through regular market channels at satisfactory prices due to increased consumer purchasing power, the fact that other meats have increased in price, and increased use of chickens by our armed forces.

### Lend-Lease Purchases

Purchases of canned chicken have been made for Lend-Lease purposes and probably will continue. However, these purchases will not be sufficiently large to support the price of chickens in the same way that egg prices have been supported by AMA purchases, and producers should not place too much reliance on this possibility. The quality of canned chicken purchased by AMA will depend entirely on Lend-Lease and distribution requirements for this product.

Broilers are not included in the goal program. Neither broilers nor fryers can be used for canning or distribution. Both are highly specialized products, and the rapidity with which they can be produced would create a difficult situation if they were subject to price-supporting measures. The increased production of these types of poultry should not be encouraged, unless the supplies can be readily absorbed through regular commercial trade channels.

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## *Hail the Hen!*

Times of national stress often bring forth feminine leaders to whom the rank and file look for guidance and inspiration. France had her Joan of Arc, England her Florence Nightengale and China has her Madame Chiang Kai Shek. As an exemplary figure after which to pattern our views and actions during these war times, we could go a long way before finding a better citizen that Henrietta, the hen:—

She's up with the sun every morning and early to bed every night.

She puts forth her best effort every day without any promise of bonus, extra reward, or pension.

She doesn't demand a 40 hour week and double time for overtime.

She doesn't go on sitdown strikes —when she sits down, it means business.

She's perfectly willing to share what she has with her neighbor without feeling either superior or martyred.

She doesn't spend half her time squawking about the fellow who gets more than she does.

She makes no attempt to hoard but is content with her daily share.

She isn't a self-appointed authority on everything from rationing to aerial combat, but just tends to her job.

She isn't always looking for a soft spot where the work is easy and the pay is good.

She's too busy to worry about keeping up with the Joneses.

She produces a vital and essential war material (eggs) and is publicly proud of her workmanship.

Although her very life depends upon continued high production, she sings at her work.

Her's is the real spirit of Victory.

—Washcoegg, April, 1942.

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A BREED of poultry entirely devoid of comb or crest is the Breda, known here as the Guelder. It originated in Holland and was popular in that country at one time.

The male Breda weighs from 6 to 9 pounds and the female from 5 to 6½ pounds. The birds are somewhat larger than the Plymouth Rock and are sparingly feathered on the outside of the shanks. As pictured, Bredas are very full-breasted, long in body, and resemble fowls of the Asiatic family to a slight degree.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, May, 1942.

# Meeting the Wartime Feed Situation

*Release from the National Research Council*

EDITOR'S NOTE: The following is a release from the National Research Council, Washington, D. C. The subcommittee on poultry feed consists of R. M. Bethke, H. S. Almquist, and G. F. Heuser. Dr. Bethke is secretary of the committee on animal nutrition.

THE immediate problem which the poultryman faces due to the war is adjustment of his rations to supply adequate protein, vitamins A and D, riboflavin, and the water-soluble factors usually associated with riboflavin. This is due to the decreased supply of fish oils, the diversion of large amounts of dried skimmilk to human needs, and the possible shortage of certain protein supplements in some areas.

**Vitamins A and D:** The vitamin A and D supply from fish oils has been greatly decreased. Fortunately, however, the production of D-activated animal sterols in this country has developed to the stage where vitamin D in this form can be plentifully supplied. Experimental work has shown that vitamin D in the form of activated animal sterols can be substituted for vitamin D from fish oils on the basis of their vitamin-D potency, as determined by the A. O. A. C. chick assay.

Poultry flocks that are exposed to direct sunshine when out of doors, in sun porches, or sun yards will receive adequate vitamin D so that it is unnecessary to include it in the ration.

Since the use of D-activated animal sterols or exposure to direct sunshine does not provide the vitamin A usually furnished by fish oils, it is essential that the vitamin A content of the ration be given consideration when vitamin D is supplied by these methods, unless ample green feed is available.

Vitamin A must also be considered in light of War Production Board Limitation Order L-40, released February 10, 1942, which limits the amount of vitamin A from fish oils which can be used in feeds. This order, as amended on April 10, 1942, prohibits, beginning April 10, 1942, the manufacture or preparation of feeds which in the form recommended to be consumed, contain more than 1,000 U. S. P. XI units of vitamin A derived from fish or fish liver oils per pound.

Chicken, turkey, and duck breeding feeds and turkey starting and growing feeds are permitted, under this amended order, to contain 2,000 U. S. P. XI units of vitamin A derived from fish or fish liver oil per pound. However, the order states that these restrictions "shall not

National Research Council, 2101 Constitution Ave., Washington, D. C.
(Report No. 1, Committee on Animal Nutrition, April, 1942)

apply to stocks of fish or fish liver oils which on February 10, 1942, were in the hands of, or in transit to, or blended and held in stock for the account of, persons who have purchased such oil for use by them as one of the ingredients of their manufactured feeds."

This restriction on the use of vitamin A from fish oils makes it necessary to pay more attention to the use of green forage, alfalfa meals, and dried cereal grasses as sources of vitamin A. The vitamin A requirements of poultry can be adequately met by green grass range or feeding adequate amounts of fresh greens. The requirements can also be met by the use of yellow corn and alfalfa meals. However, it must be recognized that alfalfa meals vary greatly in their vitamin A content according to research reports and reports from Feed Control Officials in several states. In general, dehydrated meals contain more vitamin A than sun-cured meals. Losses of vitamin A potency occur during storage of the meal. The extent of loss will depend upon the length of time in storage and storage conditions. Care must be exercised in the purchase and use of alfalfa meals when they are to serve as one of the main sources of vitamin A in poultry rations.

**Milk Products:** Dried milks have been largely used in poultry rations to furnish riboflavin and associated factors. Because of their high price and unavailability due to the diversion of large amounts of whole and skimmed milk to human needs, substitutions should be made where possible in the interest of economy. These substitutions should be made on the basis of supplying as nearly as possible the equivalent protein and vitamin values previously furnished by the dried milk.

Dried skimmilk will furnish about 8,000-9,000 micrograms (units) of riboflavin per pound. Dried buttermilk will furnish slightly more than dried skimmilk. In addition to riboflavin, these products contain other water-soluble factors. Since these latter factors cannot be expressed quantitatively at present, substitution must be made chiefly on the basis of the riboflavin values. Milk replacements should be made on the basis of riboflavin assays or guarantees whenever possible.

Under present conditions, the most available and dependable dried milk replacement is dried whey. In addition to containing approximately 10,000-11,000 micrograms (units) of riboflavin, dried whey contains the other water-soluble factors of dried milks. The production of dried whey has been increased greatly, and whey is available generally in most sections of the country at a lower price than dried milks.

**Other Riboflavin Carriers** with approximate riboflavin values per pound are:

| | Micrograms (units) per pound |
|---|---|
| Commercial liver meal .... | 18,000—20,000 |
| Butyl and ethyl alcohol fermentation residues .... | 18,000—50,000 |
| Dried distillers' solubles ... | 11,000—13,000 |
| Distillers' dried grains with solubles .................... | 6,000— 7,000 |
| Alfalfa meal (dehydrated 17-20 per cent protein) ... | 7,000— 8,000 |
| Dried brewers' yeast (45 per cent protein) ......... | 15,000—18,000 |

High-grade alfalfa meals or fresh greens can be used as partial milk substitutes in many instances. Five per cent of alfalfa meal in the mash ration is safe, although under some conditions up to 8 per cent can be used.

According to published (and some unpublished) reports, commercial liver meal, alcohol fermentation residues, dried distillers' solubles, distillers' dried grains with solubles added, and dried brewers' yeast can be used as milk replacements to supply riboflavin and associated factors. Unfortunately, liver meal and alcohol fermentation residues are generally not obtainable. Although work has shown that the above-mentioned products can be used as milk replacements to supply riboflavin, they should be used only when the poultryman or user has definite assurance of their riboflavin content. In some instances, caution must be used because of their laxative effect.

Dried milks contain from 32 to 35 per cent protein, which must be provided for in substituting for milk. The difference in protein between the amount present in milk and that supplied by the substitute can be furnished by adding protein concentrates, such as fish meal, meat scraps, or soybean oil meal. Products like peanut meal and corn gluten meal can be used in limited quantities in poultry rations but cannot be considered as substitutes for animal proteins.

**Source of Protein:** The quality of the protein is of fundamental importance in poultry rations. It is necessary to use some feeds of animal origin, such as meat scraps and fish meal. One-half of the protein, other than that furnished by the cereals, can come from vegetable sources like soybean oil meal or peanut meal. Under some conditions, even larger quantities of the vegetable protein concentrates can be utilized, particularly soybean oil meal. When more than one-half of the supplemental protein comes from vegetable sources, it is necessary to add additional calcium and phosphorus to the ration. This can be accomplished by the use of steamed bone meal.

**Pasture or Green Feed:** One of the best ways to meet the vitamin problem is to take advantage of the nutritive value of green plant materials, such as young, tender grass or equally good leafy green feed. Fresh, green plant material is rich in vitamin A and riboflavin and associated factors. As long as fresh green plant material is available and is consumed in adequate quantities, it will supply enough of these vitamins so that dried milks or milk substitutes can generally be omitted from the ration.

## *Feed Storage Bins*

From four to six different kinds of poultry feed will be found in the average producer's feed room at this time of the year. Depending, of course, on the number of chicks, laying and breeding hens to be fed there may be several sacks of each of the various feeds on hand. From this it may be readily seen that thousands of sacks are tied up temporarily on the farm for feed storage purposes. Some of them for only a week or two, but some with grain in them may be held on the farm for several months. During this time, mice, rats, dirt, and dust are going to lower the value and lasting quality of the sacks more than if they were in steady use for feed delivery.

In the light of present transportation conditions, it is important and proper that producers should maintain larger reserves of feed on hand than would normally be required, especially whole wheat, oats, whole and cracked corn, oyster shell, and grit.

You can help materially in the present sack shortage by dumping the feed as soon as received and returning the sacks at once to be cleaned, fumigated, and used again. If this is to be done, it will be necessary to make provision for storing the feed in bulk. Storage bins for this purpose may be constructed of 4 or 6-inch flooring, ½ inch plywood or even a good grade of shiplap, if allowed to dry well before using. Bins constructed in the feed room require less floor space than the same amount of feed stored in sacks. When mash is stored in bins it is well to have two bins for each kind of mash so as to alternate and not allow the mash in the bottom of the bin to become stale. Some poultrymen construct their bins with an opening at the bottom from which the feed is used. In this way, the oldest feed is used first and the fresh feed is dumped in the top of the bin.

Regardless of how simple or how elaborate you may wish to construct them, it will pay you to plan now and build bins to store a good quantity of feed, in keeping with your requirements. When planning your bins, you should keep in mind that mash should be fed while it is fresh, within a week or two at most, although scratch feed and whole grains may be safely stored for a much longer time, if desired.

—Eggsaminer, April, 1942.

# WAR AND THE POULTRY RAISER

### Egg Case Shortage Continues

More poultry raisers have felt the shortage of used egg cases during the past month, and the search for cases in which to ship their eggs must have used thousands of pounds of precious rubber and still greater quantities of gasoline.

Contacts with producers indicates a general feeling that heavy egg case destruction is occurring in Army camps. In building a large fighting force as quickly as possible, there is a constant turnover of personnel in the various camps, which complicates the job of salvaging egg cases as well as other types of containers.

Steps have been taken by the Army to work out a systematic plan of offering egg cases for inspection by prospective bidders at the various camps on specified dates. Posters encouraging egg case conservation are being placed in all Army kitchens throughout the United States. Poultry raisers or marketing groups interested in bidding on egg cases at a particular camp should write the Office of Quartermaster General, Salvage and Surplus Properties Branch, Washington, D. C., indicating the camp at which they desire to buy cases.

One large case manufacturer on May 4 reported that he had on hand unfilled orders equivalent to 375,000 new cases, but production had ceased that day because of inability to get stitching wire which is used to fasten cleats to the case ends. The quantity of nails and wire required by this one manufacturer are so great that he seems to have difficulty in getting action from the War Production Board and various defense agencies in the Department of Agriculture.

Many new cases, however, have been moving into the East where a number of the auctions have been buying them in carload lots. In Delaware, a wood manufacturing concern is looking into the possibilities of egg case making.

To help relieve the situation in the East, the Northeastern Poultry Producers Council, Trenton, N. J., is opening a warehouse in New York City from which it will sell new cases. If necessary, it may go into the used case business also.

In Chicago, the Institute of American Poultry Industries, 110 North Franklin St., has established an egg case service bureau for egg dealers and producers, offering new cases (minimum of 10 to an order) for 39 cents each, F. O. B. Chicago.

## New Ceiling on Used Cases

Two months after establishing a temporary ceiling price on used egg cases which it failed to enforce, the Office of Price Administration on April 23 announced a permanent maximum price schedule. Although OPA investigators have been checking the records of used case dealers, country egg buyers still found it necessary to pay well above the ceiling price to obtain cases at all during the first week of May.

Instead of the three grades provided for in the temporary schedule, used egg cases are classified as completely reconditioned and unreconditioned. Price differentials are recognized for the Eastern, Central, and Western areas, but no maximum prices have been set for the Rocky Mountain and Pacific Coast areas. The areas follow:

**Eastern:** Maine, Vermont, New Hampshire, Rhode Island, Connecticut, Massachusetts, New York, New Jersey, Pennsylvania, Virginia, West Virginia, Maryland, Delaware, North Carolina, South Carolina, Georgia, Flordia, and the District of Columbia.

**Central:** Wisconsin, Michigan, Illinois, Indiana, Ohio, Kentucky, Tennessee, Mississippi and Alabama.

**Western:** Minnesota, Iowa, Missouri, Arkansas, Louisiana, Texas, Oklahoma, Kansas, Nebraska, South Dakota and North Dakota.

Used case dealers complained that the temporary schedule gave them no protection against higher prices charged by storekeepers for empty cases, so OPA classifies the grocer, baker, and dairy store as "small egg case emptiers" and prohibits them from charging above a certain price.

Firms which have for sale more than 300 cases in one lot or which have emptied at least 600 cases in the week prior to the transaction subject to the regulation, are termed "bulk emptiers." This would probably include chain stores, drying plants, and other large handlers of eggs.

In the schedule, the charge for the component parts of a case are indicated. For example, an **unreconditioned** shell in the eastern area is worth 2 cents; 12 unselected flats, 2 cents; and an unselected cover, 7 cents. The schedule for unreconditioned cases in the various areas is as follows:

| | Eastern | Central | Western |
|---|---|---|---|
| Small emptiers | 7 cents | 12 cents | 15 cents |
| Bulk emptiers | 10 cents | 15 cents | 18 cents |
| Peddlers, brokers, used case dealers. | 12 cents | 17 cents | 20 cents |

A **reconditioned** case includes a reconditioned shell, 12 selected standard cupped flats, 10 selected fillers, and a full cover. The shell must be sound, solid, inspected, recoopered where necessary, and the openings are not to exceed 1 inch in width. The 12 flats are to have cups unbroken and firm, free of odors and yolk stains (OPA has it "yoke"), and no large tears. The requirements of the fillers are the same.

Reconditioned cases may be sold by any person, other than a retailer of used cases or a poultrymen's cooperative, at 22 cents in the Eastern area, 27 cents in the Central area, and 30 cents in the Western area. To such cases must be affixed a label, which will be broken when the case is opened for use, indicating that it has been reconditioned and giving the name and address of the reconditioner.

The retailer of egg cases, who may be the country egg buyer or country storekeeper receiving eggs, can add 8 cents to each case, charging 30 cents to producers in the Eastern area, 35 cents in the Central area, and 38 cents in the Western area.

Sales of eggs by poultrymen's cooperation organizations are not subject to the new regulation, but they are bound by it in purchasing cases.

Whether the new regulation will be enforced any better than the temporary ceiling schedule remains to be seen. Because the purchaser who pays above the ceiling schedule is just as guilty of violation as the seller who charges too much for the cases, evidence may be difficult to obtain. The country egg buyer who needs cases to take back to his producers has no choice; either he pays the price asked by the case dealer, or he goes home without them and quits business.

## Gasoline Rationed

If you live in one of the eastern states, you are probably carrying a gasoline rationing card indicating the amount of gasoline which you can purchase during the temporary rationing plan in effect from May 15 to July 1.

Farmers will be able to obtain all the gasoline they need for tractors, trucks, and farm equipment without a card, but they must sign a statement to the effect that they will not use the gasoline purchased for this equipment for other purposes. The family car, however, is subject to rationing. Where the gas requirements are greater than provided for on the ration cards, the farmer or poultryman can present an appeal to the local rationing board.

States in which gasoline is being rationed include Connecticut, Delaware, Florida, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, Vermont, Virginia, West Virginia, and the District of Columbia.

## Government Announces Price Schedule on Dried Egg Purchases

To give egg drying plants an opportunity to plan their operations ahead, the Agricultural Marketing Administration on April 13 announced the prices it would pay for offerings of dried eggs made by noon, April 15, for future delivery during the balance of 1942. On April 17, it extended the time for receiving these offers to noon April 22.

All offerings were to be made at f.o.b. plant prices, which after adjusting for transportation costs to the nearest ¼-cent per pound, will not exceed the following prices New York basis:

| Delivery through | |
|---|---|
| May 31 | 95 cents |
| June 1 to 15 | 96½ cents |
| June 16 to 30 | 98 cents |
| July 1 to 15 | 99½ cents |
| July 16 to 31 | $1.01 |
| August 1 to 15 | $1.02½ |
| August 16 to 31 | $1.04 |
| September 1 to 15 | $1.05½ |
| September 16 to 30 | $1.07 |
| October 1 to 15 | $1.08½ |
| October 16 to 31 | $1.10 |
| November 1 to 15 | $1.11½ |
| November 16 to 30 | $1.13 |
| December 1 to 15 | $1.14½ |
| December 16 to 31 | $1.16 |

The immediate effect of the announcement was a firming of the egg market as dryers began to buy eggs to put in storage for future breaking.

On April 28, the Agricultural Marketing Administration announced that offerings would be received up to noon, April 29, but that no offers were desired for December delivery.

## Vitamin A Allowance Raised

A revision of limitation order L-40, restricting the use of vitamin A derived from fish liver or fish oils, was issued by the War Production Board. It takes into consideration the increased vitamin A needs of certain classes of poultry by allowing up to 2,000 units per pound for chicken, turkey and duck breeding feeds, and turkey growing and starting feeds. The limit of 1,000 units of vitamin A per pound of feed applies to all other feeds.

Another concession permits feed manufacturers to use their stocks of oils which were blended and in their stocks prior to February 10, 1942, without adjusting them to the restrictions on finished feeds set forth in L-40.

## Poultry House Building Permitted

The War Production Board has issued an order halting any new construction of a non-defense nature, but poultry raisers can build new henhouses, silos, grain storage bins, and other buildings essential to the Food for Victory program without permission, provided they do not exceed $1,000 in cost per building unit.

If a building is likely to cost more than $1,000, application must be made to the county USDA War Board, which will act for the War Production Board in deciding whether or not the farmer can go ahead with his construction plans.

## Iron and Steel for Some Poultry Equipment Banned by WPB

Unless the War Production Board has a change of mind later, it looks

as though the manufacture of poultry equipment will cease for the duration of the war.

On May 4, WPB forbade the use of iron and steel in more than 400 civilian products. Among them were canopies for brooder stoves, chicken crates, chick feeders, feed troughs, incubator cabinets, grain storage bins, wire baskets, and other items.

For a period of 45 days, a manufacturer may process iron and steel for various items which come under the ban, and for another 45 days, he is privileged to assemble them. After the 90-day period, however, all use of iron and steel for the items listed must cease

reports that it has turned down a large volume of orders and has tried to distribute the equipment to old customers in proportion to their previous purchases.

The demand for repair parts in most instances is somewhat greater than usual. One firm requires that broken parts be turned in for the replacement parts.

Not much has been done to develop substitute materials. Some use of pressed composition board is being made, but the use of plastics or wood is restricted to the quotas established by the War Production Board. Few of the firms have succeeded in obtaining war work.

## Great Lakes Shipping

plants.

Whether or not the railroads can handle this increased load when

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receiving these offers to noon April 22.

All offerings were to be made at f.o.b. plant prices, which after adjusting for transportation costs to the nearest ¼-cent per pound, will not exceed the following prices New York basis:

| Delivery through | |
|---|---|
| May 31 | 95 cents |
| June 1 to 15 | 96½ cents |
| June 16 to 30 | 98 cents |
| July 1 to 15 | 99½ cents |
| July 16 to 31 | $1.01 |
| August 1 to 15 | $1.02½ |
| August 16 to 31 | $1.04 |
| September 1 to 15 | $1.05½ |
| September 16 to 30 | $1.07 |

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### Equipment Banned by WPB

Unless the War Production Board has a change of mind later, it looks as though the manufacture of poultry equipment will cease for the duration of the war.

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National Poultry Digest

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For a period of 45 days, a manufacturer may process iron and steel for various items which come under the ban, and for another 45 days, he is privileged to assemble them. After the 90-day period, however, all use of iron and steel for the items listed must cease.

By the early part of this month, most poultry equipment manufacturers had reached the quotas assigned to them on the majority of items they make, and the next quota year, if there will be one, starts November 1, 1942. The increased poultry population is the main reason for the heavy equipment demand, but the quotas for this year were based on 1940 production which was low. One thing that made output low was the carry-over of unsold equipment made in 1939.

Inventories are low or entirely depleted in most instances. One manufacturer reports that three-fourths of his catalog items are no longer available at all. Another firm reports that it has turned down a large volume of orders and has tried to distribute the equipment to old customers in proportion to their previous purchases.

The demand for repair parts in most instances is somewhat greater than usual. One firm requires that broken parts be turned in for the replacement parts.

Not much has been done to develop substitute materials. Some use of pressed composition board is being made, but the use of plastics or wood is restricted to the quotas established by the War Production Board. Few of the firms have succeeded in obtaining war work.

### Great Lakes Shipping of Grain Stopped

Because steel mills need ever-increasing quantities of iron to produce the steel required for America's armament program, the Office of Civilian Transportation on May 7 announced that all shipments of grain on the Great Lakes would be prohibited, effective May 15, except by special permit. This move releases 340 grain boats which henceforth will carry iron ore.

Probably no other point in the world has as much concentration of commercial feed manufacture as Buffalo, New York, eastern terminus of the grain boats, where most of the large mills serving eastern poultry raisers and livestock farmers have plants.

Whether or not the railroads can handle this increased load when they are already crowded with the movement of war supplies is a question. Last summer, some of the eastern co-ops tried to get poultry producers and dairymen to keep a month's supply of feed on hand all the time, and the Farm Credit Administration made loans to these organizations for that purpose, but the plan didn't become firmly established as long as feedstuffs were being transported satisfactorily.

If such a situation as a feed shortage would occur in the East, one possible move would be for poultrymen to ask the U. S. Department of Agriculture to lift all restrictions on the growing and marketing of wheat.

### Universal Price Ceiling Does Not Include Eggs and Poultry

Eggs and poultry are not included in the General Maximum Price Regulation announced on April 28 by Price Administrator Leon Henderson under the authority conferred upon him by the Emergency Price Control Act of 1942. On May 11, wholesale prices on thousands of commodities are not to exceed their highest level during March, 1942. The regulation becomes effective on retail prices on May 18.

Mixed feeds and all raw and unprocessed farm commodities, except bananas, are also excluded from the regulation. A farmer who grows and processes his own products can sell up to $75 worth a month from his farm without coming under the regulation, but it would affect but few farmers anyway unless they happened to sell dressed beef and pork.

Under the Emergency Price Control Act of 1942, maximum ceiling prices on farm products are set at 110 per cent. The President, however, has indicated that he wishes this ceiling to be reduced to 100 per cent, and Secretary of Agriculture Wickard is in full accord.

Mid-April parity prices of all farm products averaged 99, but chickens stood at 107; hogs, 123; beef cattle, 131; and lamb, 122. Eggs were 96, and wheat, corn, butterfat, and milk also were below parity.

Just what steps will be taken to bring some of the prices down to parity, the President's objective, remains to be seen. If eggs go above parity, the government could lower its paying price, for government buying has determined price levels for eggs ever since the expanded food purchase program went into effect a little over a year ago. But unless the government's paying price affords sufficient margin to the drying plant operators, it may have difficulty in getting sufficient eggs to meet Lend-Lease needs. This situation seems to have developed late in April and may explain the extension of time by the Agricultural Marketing Administration in which it would receive offerings of dried eggs.

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# Poultry Goes to War

## By A. R. HACKETT

Chicago Quartermaster Market Center

*Condensed from the U. S. Egg and Poultry Magazine*

THE quartermaster market center in Chicago, one of 30 scattered throughout the country, purchased approximately 425 cars of eggs, 200 cars of poultry, and three million pounds of butter in November and December alone. That will give you some idea of the amount of food the Army's purchasing agents are buying for the boys in camp.

The operations of these 30 market centers, which buy poultry, butter, eggs, cheese, fruits and vegetables, and other commodities for the Army, are coordinated in the field headquarters control office in Chicago so that the various branches do not compete with each other.

### Many Civilian Buyers

Ten of the branches have civilian buyers—all of them men who have had considerable experience in handling one or more of the products they are buying. The reserve officers who do the buying in eight other market centers have also had some experience along these lines. At branches where there is neither a civilian buyer nor a reserve officer, the purchasing (always l.c.l. orders) is done by the officer in charge or the men under him.

It is our aim, wherever possible, to place as many orders as we can in the vicinity of the different camps, and practically all the l.c.l. orders are handled and purchased through local Quartermaster Market Centers.

Of course, it is impossible to procure all the products we need in nearby territories, because they don't have them, and it is necessary to buy some things in other sections of the country, sometimes a long distance from the place they are wanted. This is the main reason for handling most of our carlot orders through the Chicago office. A good many carlots are purchased through branch offices, however, and I want it understood that we don't favor any one section of the country in our purchases.

### What They Eat

Here are some figures on food consumption per 100 men, which will give you an idea how well the boys in uniform are eating. They are allowed 3,120 eggs, averaging 31.2 eggs per man per month; 511 pounds

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(U. S. Egg and Poultry Magazine, March, 1942)

of poultry, or a little over 5 pounds per man per month; 314 pounds of butter, or slightly better than 3 pounds per man per month; and 53 pounds of cheese, a little more than half a pound per man.

In this same period, they actually consumed 3,502 eggs – almost 400 more than they were allowed; 320 pounds of poultry, which was considerably less than they should have had; 266 pounds of butter, which was a little less than the allowance; and 50 pounds of cheese.

### Turkey for Holidays

The boys got plenty of turkey for the holidays. We purchased 1,026,360 pounds of turkey through the Chicago office for Thanksgiving and 527,390 pounds for Christmas. The reason for the heavier purchases at Thanksgiving was that we bought about half a million pounds of turkeys for the Fourth Corps maneuvers and they took more than the regular camps.

The average price we paid for Thanksgiving turkey (hens and toms) was 25.51 cents delivered to camps. That doesn't include camps in California and Texas, but it takes in most of the rest in the United States. The average price on tom turkeys was 24.66 cents delivered to camps; on hen turkeys, 27.49 cents. While this was going on, the market went from 29 to 33 cents on hens and from 26½ cents to 30½ cents on toms, so we bought these turkeys at about 20 per cent under your market. Most of them were B grade toms.

### Buy Mostly Tom Turkeys

We buy both A and B grade turkeys. We're supposed to buy all B grade, but we buy a lot of A grade in preference to B when we think it's a good buy or when the difference in price is too small to matter. Most of the turkeys we buy are toms. In fact, we don't buy hens at all unless the camps specify them, and then we often talk them out of the hens if the price on toms is more favorable. The hen turkeys we do purchase are 8 to 12 pounds each, the toms run from 12 to 25 pounds.

We buy 43 to 65-pound fowl and lately we have been taking bids on 36 to 42-pound fowl because the price is so much better. We buy 31 to 35-pound fryers (light) and 36 to 42-pound fryers, which we call heavy weights. We are buying a lot of these heavy fryers now in preference to roasting chickens, explaining to camps ordering roasters that we can save a lot of money by buying this size fryer instead. On a recent purchase, for instance, we saved approximately $15,000 by buying 36 to 42-pound fryers instead of roasters, and on another item we saved 55 cents a 100 by buying fryers. Probably 75 per cent of what we have on the books to purchase within the next few days will be fryers and we expect to save from 4 to 5 cents a pound.

If I had to eat them, I'd take the fryers any time in preference to roasters, and I think the boys would, too.

We run 48 to 65 pounds per dozen on roasters, but occasionally we stretch that, sometimes buying birds up to 72 pounds, if we can get the camps to use them.

We buy both A and B grade poultry and I'd like to point out that by A grade we mean top grade or fancy chickens in a commercial pack. By B grade, we mean choice. The ducks and geese we buy are all fancy—the ducks running from 4½ to 6 pounds, and the geese from 8 to 12.

### Rejections Small

We hear a lot of talk about rejections, but actually we don't have many. In fact, they are hardly worth mentioning. Since I've been with the Quartermaster Market Center, our actual rejections on chickens, fowl and ducks have been approximately 15,000 pounds on four shipments. This figure is for the Chicago office only, but that takes in most of the country. Of these 15,000 pounds, 10,000 pounds were rejected because the shipper sent the wrong sizes (we asked him for 60 to 65-pound chickens and he insisted on giving us 70-pound and up birds) so you can really leave them out of the picture. When the camp officer called me about those birds, I said: "You fire them right back to him. I warned him not to ship that size."

The rejections on turkeys have been much smaller than we expected, especially when you consider the amount of B grade we've bought. Total rejections in Chicago turkey purchases amount to 61,963 pounds. Of these, 51,000 pounds (two cars) arrived at the camp in off condition. They were fresh turkeys. The cars weren't loaded right and they didn't have ice. The lumber in the boxes was so thin you could read a newspaper through it and they were badly damaged.

### Use Care in Loading

The balance of the rejections on turkeys were on small orders and the reasons for rejection were trifling. I'd say 98 per cent of the rejections were warranted, and most of them could have been avoided if the shippers had used care in filling the orders and loading and icing the cars. Too many shippers are careless about the way they load the cars. This is especially true on turkeys, both fresh and frozen. You have to remember that wire-bound turkey boxes are very flimsy and won't stand much rough handling. You put one of these boxes on the floor and pile many on top of it and the bottom box is going to get smashed up—and the turkeys, too.

The fellows in Utah and Idaho don't do that. They brace and rack them and the car can't shift unless it gets thrown off the track. I think it would be a good idea for all turkey shippers to follow their example.

Another thing I'd like to suggest is that shipments should be marked carefully so the receiving details at the camp don't have to guess at the weight or kind of poultry in the package. It's particularly important to mark packages plainly when there is more than one shipment in a car, because the boys who unload them aren't experienced in this kind of work. They're just another gang of boys called "Joe." They may be shoemakers, clerks, lawyers or bakers, and they probably have never seen the inside of a refrigerator car before, let alone a box of chickens.

### Should Inspect at Source

Inspection at the source is not compulsory, but it is good business to have turkeys and poultry inspected before shipment by either an A.M.S. inspector or an Army veterinarian. This is for your own protection. Regardless of whether it was inspected at the source or not, every shipment is inspected at the destination for its fitness as food for human consumption and compliance with the terms of the contract. Stock that passes inspection at the source stands a good chance of passing at the destination.

We have a big job on our hands and we all have a lot to learn about it. I've been out to two schools lately. I talked to a bunch of colonels and to 35 to 40 young Army veterinarians. Most of them are good men, but they don't know much about poultry. However, they cooperate with me and they are willing to learn. We're getting fine cooperation from all branches of the Army–through Captain James Gwin, who supervises the purchase of poultry, eggs, butter, and cheese in our office, and through the branch office, which also is in charge of an officer.

### Buying is Complicated

Army buying is complicated because troops are moved here and there without warning and shipments have to be re-routed. A sales officer with 30,000 men to feed when he goes to bed may wake up in the morning to find them all gone. There's nothing for him to do but cancel his order. I had a case the other day where I had two cancellations on the same man. Those things can't be helped, but I felt ashamed of myself. I called him up and said, "I have a car coming up in about a week. I'll place that order for you." That way, he really had only one cancellation.

I believe I understand most of the problems connected with the poultry business. I ought to. I've worked up from the bottom. And I want you to know I'll cooperate with you every way I can. We need your help to get this job done, and we'll appreciate your cooperation. Remember, our Army is made up of the finest boys in the world.

---

# Short of Help?

By C. E. LEE

*Reprinted from American Poultry Journal*

MORE and more poultrymen these days are finding it necessary to get along with less help, either because helpers have been drafted or because they have been lured away by high wages paid for defense work. At the same time, poultrymen are trying to respond to the call of Secretary Wickard, who has announced that the government needs greatly increased production of eggs and poultry for 1942.

Caught on the horns of this dilemma, the poultryman must either cut down his operation, and thus fail the country in this time of need, or devise methods for satisfactorily taking care of more hens with less labor than ever before. There are ways in which labor can be reduced.

Let's see how it can be reduced to advantage in the feeding and management of the flock.

### Labor Saving by Hopper Feeding?

At the Research Farm this year, we are trying out, along with our regular system of laying mash, supplementary fleshing pellets at noon and scratch grain at night, a program of feeding everything in hoppers, using mash in front of the birds at all times and also whole corn and whole oats in separate hoppers. This was started last fall after the pullets were housed and the experiment is being run on nine pens of laying birds, about half of them R. I. Reds and the other half White Leghorns. We shall report on the complete results at the end of the laying year, and if it looks worth doing, we will continue the experiment a second year.

### Mash and Grain Consumption

The results so far have not been too encouraging. The Reds were consuming about 14 pounds of mash per 100 birds before they were put on this hopper feeding program. From 14 pounds of mash per 100 birds daily on October 29, a typical pen, then laying slightly above 45 per cent and with production rising rapidly, dropped down to an average consumption of 4.65 pounds of mash per 100 birds on December 17 and the gain in production stopped at a little above 55 per cent.

By January 21, this pen was down to 46 per cent production, although mash consumption had improved a little, rising to 6.8 pounds of mash per 100 birds daily. When these birds were hand fed, they were get-

American Poultry Journal, 536 So. Clark St., Chicago, Ill.
(American Poultry Journal, April, 1942)

ting, in October, 21 lbs. of scratch grain to the pen of 179 birds. When they were put on hopper fed oats and corn, they immediately went up to the consumption of 25 pounds of oats and 8½ pounds of corn per day and kept on increasing until they were consuming 35 pounds of oats and a little under 6 pounds of corn. Gradually, they have settled down to an average of 6¾ to 8 pounds of mash, and the grain still fluctuates, one week they will eat 16 pounds of oats and the next week they are up to 28. Corn will fluctuate between 8 and 12 pounds daily.

Naturally, production has not been what it should be, although the birds are showing some improvement recently and are back now to an average of 51 per cent production, with mash showing a tendency to increase somewhat although it is still low. As a matter of fact, there is every indication that grain consumption would remain abnormally high and mash consumption abnormally low if we had not adopted the practice, in the pens where corn and oats were being hopper fed, of putting only a little mash in the troughs at a time and renewing the mash at least once each day.

### No Saving in Labor

Giving fresh mash frequently, of course, is an excellent way to increase mash consumption and it has been of real help to these birds, but by doing this, we also increase the amount of labor, so that actually, for each laying house, it has taken a man about twice as much time to feed the birds each day, where everything is hopper fed, as it is in the other pens. If we could simply fill up the mash hoppers in these pens where grain is being hopper fed, the same as we do in the pens where grain is being hand fed, then we would save a very small amount of labor by hopper feeding the grain, but in practice so far it has not worked out with us that way.

### Hopper Feeding Leghorns

Let us see what effect this has on a typical pen of Leghorns.

The Leghorn pen in the experiment averaged about 190 birds per pen and were hatched 2½ months later than the Reds, so that the experiment was not started as early. In fact we had not intended to use them in this experiment, so that they were up to an average of 79 per cent production on November 19 and had settled back to about 75 when the experiment was started about December 1.

With hand feeding of grain, they were getting 24 pounds per pen (190 birds), 7 pounds in the litter in the morning and 17 pounds fed on top of the mash in the hoppers at night. At that time, they were consuming too little mash, having for some reason dropped down from 12.4 lbs. per 100 birds daily to less than 7, so the changeover did not decrease

mash consumption; in fact, they showed an increase to 7.8 pounds of mash per 100 birds daily for the first couple of weeks, then began to slide back again.

At the same time, grain consumption rose to 30, 32, and finally to 37 pounds per pen (190 birds) daily, being divided on no apparent fixed ratio, as the birds showed 22 pounds of oats consumed per 10 pounds of corn one week and the next week dropped to 18 of oats and 15 of corn per day, and the following week showed 17 of oats to 20 of corn. Right at the present time (late February), they are running at about 16 pounds of oats to 8 of corn. Egg production has shown considerable fluctuation, dropping from 76 down to 49½ in the period from the start of the experiment to January 21, but now rising again to an average of 66 per cent.

### Darker Yolks

By adding another mash hopper in each pen where the grain is being hopper fed, it is possible that we could still further increase the mash consumption to some extent and decrease the grain consumption. Certainly it seems necessary to feed fresh mash at least once every day to keep up consumption where the corn and oats are in front of the birds in hoppers at all times. Furthermore, this heavy consumption of grain, and particularly the considerable variation that occurs from week to week, tends to produce some dark yolked eggs, and, of course, there is much less uniformity because some of the birds eat a considerable amount of corn while other birds eat mostly oats.

To sum it up, we might say that it seems to us, thus far, that there is no saving of labor under this system if the poultryman desires to get top-notch egg production. Furthermore, there is a lowering market quality of the eggs by reason of darker yolks and less uniform yolks and this is an important point with any eastern poultryman catering to quality egg trade.

Soft shells, due to low mash intake, are also too common with this system, and shell quality is particularly variable, due to individual variation in mash intake.

### Automatic Fountains Save Labor

In visiting various commercial poultry farms in the eastern states, we still find altogether too many that are using antiquated types of water fountains. One of the greatest labor savers we have installed during the last two years has been a recently developed automatic fountain which requires virtually no labor at all and no attention at any time. This can be completely cleaned by a flick of the wrist, but even that is not absolutely necessary, as it is practically self-cleaning. Running water, always clean, is provided at all times and the flow is adjustable.

When we see poultrymen spending a lot of time scrubbing and disinfecting water fountains in the laying house, and in the end achieving less sanitation than they get automatically with this more modern type of fountain, it seems to us that there is scarcely anything a poultryman could do in saving labor and improving results that would be so effective per dollar invested as the purchase of a more modern watering-device.

### Litter Carriers Save Time

Any poultryman who doesn't use litter carriers in his laying houses can very readily demonstrate to himself how much time he is wasting and how many more layers he could just as well carry on his plant with the same amount of labor. Just get the carrier system for one laying house and try it out for a while.

The carrier track should be set so that the carrier will slide right along the front of the droppings boards. Of course, if you have droppings pits in your house, you can't scrape off directly into the carrier, but you can shovel up the droppings and dump them into the carrier, which probably is about as good as you can ever do with that type of construction. You will be much more likely to clean out the pits when they should be cleaned if you have a good carrier system in your house, and cleaning them more often will pay good dividends in better sanitation, less trouble from ammonia fumes, red mites, rats and mice, etc., that accompany the use of droppings pits on the majority of poultry plants in the East.

The same track, and if necessary the same carrier, can be used to transport feed, by mounting a platform directly on top of the manure carrier, but the best arrangement is to have another carrier. The same platform will serve for holding the pails of eggs when the collection is being made, or two platforms can be set up.

### Don't Waste Labor!

Contrast such an arrangement with the job of carrying manure out of the house in a cleaning box or carrying feed and eggs through a long house entirely by hand. A good many poultrymen are still wasting a lot of labor.

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◄◄ A WAX MODEL of a freshly-killed, undrawn chicken looks very realistic in the wax reproduction of the soldier's food ration on exhibit in the Army's standard sample room in Washington, but it was a difficult model to prepare. Mrs. Margaret Roller, artist in the Quartermaster General's Office, made smaller molds of the different portions of the carcass and then pieced them together to represent the delicate bones and contours.

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# More Eggs, More Poultry?—Coming Up!

**By RALPH HARMON**

Farm Credit Administration

*Condensed from News for Farmer Cooperatives*

WHEN Uncle Sam sent out word that the country would need 400 million pounds more poultry in 1942 than was dressed in 1941, and 3,570 thousand-dozen more eggs, he found a group of cooperators in the Northwest all set to do their part in producing this gigantic increase in food for America and her allies. These were the hundreds of farmers who are raising poultry for egg and meat production and maintaining top-notch breeding blocks for the chain of cooperative hatcheries operated by the Land O'Lakes Creameries.

When the Department of Agriculture also estimated that about 31/3 million more dressed turkeys would be needed this year, here, again, the cooperative was ready to do a big job and a good job, with its Broad Breasted and Mammoth Bronze strains.

### Discourage Late Hatching

Farmers throughout the territory served by these five big hatcheries had in January booked orders for 83,000 more turkey poults than at the same date a year ago, while 100,000 more baby chicks had been ordered from the heavy-laying strains and the big-type meat breeds of chickens. Orders are still pouring in, and it is anticipated that the hatcheries will be busy from the time their first 50,000-egg incubator was set the early part of February to the end of the hatching season in May.

For best results in its latitude, Land O' Lakes does not recommend attempting to hatch layers later than May. The later-hatched birds are apt to be still immature when cold weather sets in and may be a costly investment, not getting into egg production until after the peak of the price season is past.

### Better Early Than Too Late

"In poultry as in war, it's better to be early than too late," says C. C. Brahs, poultry specialist. "We always try to get chicks out early enough to insure a good production job in the laying house. To step up our output for this crucial year, we are increasing the capacity of some of our hatcheries, rearranging facilities at some points, and aiming to get a little earlier start in localities where this is practicable."

The cooperative had been operat-

Farm Credit Administration, Washington, D. C.
(News for Farmer Cooperatives, April, 1942)

ing for a dozen years as the marketing channel for farmers' cooperative creameries when it branched out into the chick-hatching enterprise at Thief River Falls, Minn., in 1934. Thief River Falls is on the edge of the Red River Valley and the once heavy timber country of Minnesota, now widely known as the "cut-over" region. Farmers were engaged largely in raising grain and feeding cattle, but there were a few good key flocks on some of the farms, and there was an abundance of suitable feed.

### Poultry Aids Diversification

Farmers wanted a reliable outlet for the high-quality hatching eggs they were producing, and it was in response to this call that Land O'Lakes established its first hatchery, in connection with the live-poultry concentration plant it was operating there. In the eight years intervening, the character of the agriculture of that region has been largely transformed. Farms are more diversified and poultry and dairying have replaced much of the grain and beef-cattle production.

The 50,000-egg capacity with which operations began in 1934 was doubled the next year, and the year after that special equipment for hatching turkeys was installed. Today this plant has been stepped up to a capacity of 174,000 turkey poults and chicks, with a 1941 output of 312,000. More than 80 per cent goes onto the poultry farms in the adjacent region.

Hand in hand with its hatching facilities, Land O'Lakes inaugurated a flock-improvement program, following well-established methods for inspection of flocks and providing flock owners with breeding stock into which had been crossed strains of high egg-producing capacity and large size. At the start of the program the average size of the Leghorn pullets put into the breeding and laying pens, for example, ran from 3¼ to 3½ pounds. Today pullets of this breed which qualify for Land O'Lakes "special" rating must weigh at least 4½ pounds. Eggs also have been increased in weight, and the average production per hen has been raised.

### Early Success Multiplied

Standards now required for flock masters to supply eggs to the hatcheries call for the breeding flocks to be in 50 per cent production at 6 months of age with minimum size of eggs 23 ounces per dozen, and fertility not less than 70 per cent. As a matter of record, the flocks had been brought up to an average of 187 eggs per hen per year by 1938, and selection and breeding are steadily working toward higher levels.

In addition to providing a market, improving flocks, and speeding up production, Land O'Lakes provides production supplies and feeds especially compounded for the rapid growing and economical finishing of poultry. In addition, it finances many flock owners in the purchase of chicks, poults, and feed. Attention to sound credit principles in the financing program is gratifying to the management, says Brahs. Last year, out of more than 300 flock owners who were financed for the purchase of 120,000 chicks and poults, there were only four unsatisfactory loans.

## *Tire Rationing Hits Egg Routes, Roadside Stands*

The government order "no tires for retailing" is greatly changing our poultry industry. Sixty-five per cent of the eggs and poultry produced in Essex and Middlesex Counties, Mass., are said to be sold at retail. Elsewhere in the state, it is an important method of selling eggs. Extensive changes are ahead.

Some are reorganizing their routes, dropping distant customers and taking on new ones nearby. Some are making deliveries every second week, and some have given up routes entirely. Tires on hand are being budgeted for the duration. Roadside stand operators, too, are being affected and expect to do about 50 per cent normal business this summer.

Poultrymen feel that now is the time to make adjustments. Giving up retailing may mean keeping more hens to provide a family living. It may mean securing a part-time job or it may mean going out of the business and into some kind of defense work for the duration. It is being accepted as a necessity and poultrymen are making the best of it.

Poultrymen are turning to the auction and marketing organizations for a helping hand during these times. These organizations are proving their right to exist. They are establishing new pickup routes, providing members with precious egg cases and are keeping, as well as possible, full stocks of equipment and supplies. Before the war is over, there may be many new duties for them.

—G. T. Klein, Featheredfax, April, 1942.

AN IOWA packing plant recently shipped a whole carload of nothing but chicken giblets in pound packages, says Frank Priebe in his Weekly Letter to Poultry Raisers. The rest of the meat from the chickens was in cans, ready for shipment on government order—the meat from a 5-pound chicken in a 1-pound can. The stock from these chickens was made into soup.

# POULTRY RESEARCH

## Coccidiosis-Prevention by Sulphur Compounds

Rations containing 5 per cent number 10 hardwood charcoal with 2 or 5 per cent flowers of sulphur or 5 per cent sulphur without charcoal, gave as great protection from coccidiosis when fed for one day as when fed three or five days before inoculation, reports O. E. Goff of the Louisiana Agricultural Experiment Station in Poultry Science (Vol. 21, No. 2).

Chicks were highly susceptible to the coccidia Eimeria tenella within 24 hours after sulphur or sulphur and charcoal were withdrawn from the ration, indicating that sulphur does not possess the ability to create a permanent resistance to coccidiosis, but merely has value in preventing infection. Sulphur acts directly upon the parasite and does not make the intestinal lining more resistant to an invasion of coccidia.

## Using Copper Sulphate

Copper sulphate is quite widely used in the medication of the drinking water. Given in heavy doses over long periods, this chemical has a toxic effect. It is, therefore, important to know whether the generally-made recommendations for its use are likely to have a deleterious effect.

Dr. E. Pullar of the Australian University of Agriculture reports (Australian Veterinary Journal 16; 147-162, 203-213) that a dilution of 1:1000 in place of the drinking water failed to produce poisoning. Most recommendations call for a weaker dilution, and where copper sulphate is so administered, it would, therefore, seem to be safe practice.

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1942.

## Vitamin A in Whale Oil

Discovery of pro-vitamin A in whale liver oil was announced at the meeting of the American Chemical Society, according to Feedstuffs, April 25, 1942. The report was presented by Norris D. Embree and Edgar M. Shantz of the Laboratories of Distillation Products, Rochester, N. Y., subsidiary of General Mills, Inc., and the Eastman Kodak Company.

This new pro-vitamin A has been named kitol. It is most plentiful in whale liver oil, but it occurs in all other fish liver oils except those of certain fresh water fish. Kitol differs from carotene in that it can be converted into vitamin A in the laboratory. In the case of carotene, the pro-vitamin is converted into vitamin A by the animal body.

Large quantities of whale liver oil have gone to waste in recent years, and this discovery will increase the amounts of vitamins obtainable from whale liver at a time when there is a need for greater quantities of vitamin A.

## Action of Colchine on Fowls

The lethal dose of colchicine for adult fowls is about 1.5 mg./kg., injected hypodermically. Sublethal doses caused some of the feathers to fall out and be replaced later by feathers with imperfect tips, report L. Arvy and F. Caridroit in Chemical Abstracts (36, 1942).

—U. S. Egg and Poultry Magazine, May, 1942.

## Chick Growth Rate and Gizzard Erosion

Conclusions drawn, following tests on supplements studied for their ability to cause or prevent gizzard erosion, may be wrong in some cases, believes E. T. Halnan of the Animal Nutrition Institute, Cambridge, England, reporting in Poultry Science (Vol. 21, No. 2).

The amount of gizzard erosion occurring may be related to growth rate in many cases, with more trouble being observed when growth is rapid. When a supplement added to the regular mash results in more rapid growth, with gizzard erosion also occurring, the conclusion might be made that the supplement contained a factor causing gizzard erosion. Halnan's contention is that many such supplements (he used whale meal) do not cause erosion but the anti-gizzard erosion factor present in the regular mash is simply not capable of meeting the chick's needs when growth is increased.

It is suggested that, since the amount of gizzard erosion may be affected by rate of growth, basal rations should be capable of inducing normal growth, and that great caution be exercised in interpreting any experiment in which the addition of a supplementary food results in an increase or decrease in growth rate.

In the experiment carried out, the basal ration contained sufficient anti-gizzard erosion factor to prevent erosion at the growth rate induced. When whale meal was added, gizzard erosion occurred. It is Halnan's conclusion that the gizzard erosion was not in response to any factor in the whale meal, but rather that the anti-gizzard erosion factor in the basal ration was not sufficient to prevent erosion at the increased growth rate.

Supplementary feeds which decrease the growth rate, with less gizzard erosion occurring, have sometimes been credited as carrying an anti-gizzard erosion factor, while the probable reason for decreased erosion was that an anti-erosion factor in the basal ration was sufficient to prevent erosion at the retarded growth rate.

### Riboflavin and Chick Health

Curled-toe paralysis is a sign of a riboflavin deficiency and is not in response to some other factors, report R. M. Bethke and P. R. Record of the Ohio Agricultural Experiment Station in Poultry Science (Vol. 21, No. 2). In groups of chicks fed riboflavin-deficient diets, curled-toe paralysis affected from 65 to 85 per cent of the birds. In lots fed a sufficient amount of riboflavin, no cases of curled-toe paralysis occurred.

Synthetic and natural riboflavin were equally effective in preventing curled-toe paralysis and promoting growth. Riboflavin was found essential to efficient feed utilization, the requirements in this respect approximating those for optimum growth. More riboflavin is required to prevent curled-toe paralysis than for optimum growth, however.

### Pantothenic Acid and Chick Development

A relatively high level of pantothenic acid in the egg was associated with improved hatchability and increased hemoglobin concentration in the blood during incubation of the developing embryos. A low concentration of pantothenic acid was associated with a larger than normal brain, while both heart and brain were depressed in relative size in embryos from the eggs with higher levels of pantothenic acid. The study, carried on by A. Taylor, J. Thacker, and D. Pennington and reported in the Experiment Station record (89, 1942), was conducted on incubating eggs injected with pantothenic acid and on eggs from hens on high pantothenic acid rations.

—U. S. Egg and Poultry Magazine, May, 1942.

### Chick Requirements for Pantothenic Acid

White Leghorn chicks required 500 to 550 micrograms of pantothenic acid (the anti-pellagric component of vitamin G) per 100 grams of diet for the prevention of dermatosis, and approximately 600 micrograms per 100 grams for maximum growth, in tests carried on by J. C. Bauernfeind, L. C. Norris, and G. F. Heuser of Cornell University says their report in Poultry Science (Vol. 21, No. 2).

Rhode Island Red chicks were less susceptible to pantothenic acid deficiency and required about 75 micrograms less per 100 grams of diet. Normal chick diets were found to contain from 1,300 to 1,700 micrograms of pantothenic acid per 100 grams.

### Phosphorous-Deficient Diets and Calcification in Chicks

No external symptoms of rickets were shown when chicks were fed a diet deficient in phosphorous but complete in other respects, even though the tibia ash content was low, report J. C. Hammond, D. Miller, and H. E. McClure in Poultry Science (Vol. 21, No. 2), on tests carried out at the U. S. Department of Agriculture's Beltsville Research Center.

When the same diet was heated, external symptoms of rickets and deformed keel bones developed.

When fed diets deficient in phosphorous, chicks require para-aminobenzoic acid and, to a lesser extent, choline and pantothenic acid, for the normal development of the keel bone.

### Semen Production Related to Egg Production Within Strains

The factor or factors controlling egg production in females may also control semen production in males report D. G. Jones and W. F. Lamoreux of Cornell University in Poultry Science (Vol. 21, No. 2).

Although there was no significant difference in size of testes between cockerels from strains selected for high and low egg production by females, males from high production strains were more active and efficient in the production of spermatozoa produced more semen, and gave higher fertility.

Males of the high-production strains studied were found to be significantly heavier than those of the low-production strains, but average weight of testes did not differ significantly between strains. Males of high producing strain attained sexual maturity at an earlier age, producing a significantly greater amount of semen at 12 weeks of age and maintaining this superiority at 24 weeks and after 30 weeks of age.

### Production and Profits

Poultry profits from laying flocks were more influenced by average production than any other single factors. From a survey of 38 flocks, G. C. Young and J. D. Dibble of the Indiana Experiment Station (53rd Annual Report, Ind. Exp. Sta.) glean that a combination of high price and high production was the most profitable situation, followed in order by high price and low production, low price and high production, and low production and low price. It emphasizes that the most profitable thing the poultryman can raise is the price. Too many do not strive hard enough for that higher price.

Average profits were highest when a large percentage of the eggs were produced during the high-price months of fall, and high percentage of fall eggs was tied up with a large proportion of pullets in the flock. When prices are highest, the spread between prices of different grades was greatest. Family labor, used in the poultry enterprise, earned an average of about 60 cents per hour.

—Carl H. Schroeder, Everybodys Poultry Magazine, April, 1942.

### Quality in Eggs

Statistical investigations on 50 White Leghorn birds indicated that (1) per cent of net thick white is primarily a characteristic of the individual hen, (2) little or no correlation exists between rate of egg production and per cent of net thick white, and (3) little or no correlation exists between weight of egg and per cent of net thick white.

The studies were carried on in Great Britain by E. T. Halnan and T. Moran and reported in Biological Abstracts (16, 1942).

—U. S. Egg and Poultry Magazine, April, 1942.

### Washing of Eggs

Examination of the effects of different methods (hot and cold water, hot and cold solutions of washing soda, sand and proprietary cleaners applied with a moist cloth) of washing eggs indicated that: washing by any method increases the number of rots during subsequent handling and storage; rots are greatest with markedly alkaline solutions; predominating rots after washing are green rots, which are usually not detectable over the lamp; and "dry washing" (e.g., sand and clean moist cloth) treatment gives fewest rots. The tests were carried on by T. Moran in Great Britain and reported in Biological Abstracts (16, 1942).

—U. S. Egg and Poultry Magazine, April, 1942.

### Post-Mortem Changes in Dressed Poultry

New York dressed birds hung in air at 35° F. begin to undergo deteriorative changes within 8 hours after killing; the first of which is the appearance of a bile stain on the liver.

Off-odors in the kidney area appear after 24 hours; these gradually spread and intensify, finally reaching the wing joint in 4 days.

The flavor of the thigh meat deteriorates more rapidly than the breast meat, becoming quite strong after 4 days.

Rigor sets in during cooking when birds are held less than 4 hours and often remains after cooking.

Cooked poultry flesh which is still in rigor is extremely rubbery and tough.

Tenderness in poultry meat increases rapidly with the passing of rigor. After 24 hours at 35° F. the meat changes little in tenderness.

The tests were carried on by G. F. Stewart, Belle Lowe, and Mary Morr.

—U. S. Egg and Poultry Magazine, April, 1942.

### Caponizing and Feather Weight

The feather weight of 10 cockerels and 10 capons was recorded at 24, 29, 33, 37 and 40 weeks of age. Feather weight and body both increased at a highly significant rate throughout the period of observation. At 24 weeks and thereafter, the feather weight of the capons was always greater than that of the cockerels. The capons reached their maximum feather weight between the 29th and 33rd weeks. The cockerels reached their maximum feather weight between the 33rd and 37th weeks, reports K. B. Tuner in Biological Abstracts (16, 1942).

—U. S. Egg and Poultry Magazine, May, 1942.

### Heredity vs. Environment

The much debated, time-honored question of "Nature vs. Nurture' has been studied with poultry by H. S. Gutteridge and J. B. O'Neil of the Central Experimental Farm, Ottawa, Ontario. (Sci. Agr., Vol. 22, No. 6). Environment is defined as those characters which are not inherent in the strain and which are covered by numerous factors, such as climate, feed, and management.

Summarizing the first phase of their work, the authors interpret their results as indicating that environment had a much greater effect than heredity upon growth of Barred Rock chicks during the period of rapid development, and an even more pronounced relative effect upon size of the leg bones and upon fullness of breast. Environmental influence seemed to be greater than hereditary influence as regards skeletal growth. As maturity approached the effect of environment upon body weight tended to decrease and that of heredity to increase.

At 24 weeks of age, heredity and environment were of approximately equal weight as regards skeletal size. It is concluded that "under good conditions of management, control of growth rate and fleshing during the period of rapid development is largely dependent upon environmental factors such as feeding, housing, and prevalence of disease. As maturity approaches, inheritable factors become more evident and environmental effects less apparent."

Whatever one's views on the relative effect of heredity or environment, the authors are to be congratulated for their vision in tackling a problem teeming with far-reaching possibilities of tremendous, potential and practical importance to the poultry industry.

—Carl H. Schroeder, Everybodys Poultry Magazine, May, 1942.

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❝ BAD news and soft-cooked eggs should be broken gently.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, May, 1942.

# Diary of a Poultryman

By **PERCY S. WHITE**
Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**May 1**—It doesn't seem so hard after all to get into the old routine of caring for chicks. For some reason or other, the actual care seems to be easier this year than any in the past. This is probably because there are only 300 chicks to the house instead of the usual 500.

Three hundred sexed pullet chicks to the house is really a larger net product than 500 straight-run chicks. Aside from the fuel, they require less of everything, feed, water and labor. I have a feeling that I am on the right track in brooding only sexed pullets, after all these years.

**May 3** — The three houses on the east side of the range are ready for chicks Monday afternoon. The screens that I took out of the houses on the south side of the range yesterday have been put around the stoves and the Mason jar fountains from the bended bow rafter brooder houses have been put in place. Oil tanks have been filled and all that is necessary to do Monday morning is to strike a match.

It is quite advantageous to start broods at one-week intervals, as the same small size equipment can be used for each succeeding brood. Monday night I will seek new sleeping quarters, probably flopping on the floor in No. 6. I seem to have established the precedent this year of spending the night for the first week on the floor with the chicks.

**May 5**—I am brooding chicks now to a fare-ye-well. All houses are filled and I am going down the home stretch for winter eggs—big profits and no work? If all of my air castles had turned out all wool and a yard wide, I would have been able to retire from active duty many years ago. But all this is water over the dam. I realize that I have grave responsibilities and much work ahead of me.

**May 6**—Inspector Sidle has started that old hue and cry about interior egg quality again. It has become an established custom with him to start growling about this time of the year. I was informed in no uncertain terms that my ungraded cases were running a few more U. S. Standards. The settlement report showed this to be true. I still think the inspector was waiting for me to deliver my eggs so that he could nab me.

Everybodys Poultry Magazine Pub. Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, May, 1942)

**May 8**—The chicks in houses 1, 2, and 3 are drinking from the 10 gallon fountains. All Mason jar fountains and stands have been thoroughly cleaned and washed and put away for next year. A few swishes through hot water next spring and they will be ready for active service for another season. Equipment will last a long time if stored immediately after use. The wire screen guards were put away several days ago.

**May 9** — Two dead ones today Yes, they die, but if they are going to die it is a wonderful time to perform the act. When they die in infancy the loss isn't as great and it provides more room for the remaining to expand and mature. The weak die young and the strong eventually end up as pickouts and blowouts. Any way it is figured, a chicken's life is rather hazardous.

**May 10**—The wire guards around the stoves in the houses 4, 5, and 6 have been removed and the chicks have the freedom of the entire floor. It is surprising what a pile of newspapers were removed. For the first few days the chicks are bedded on newspapers, while they learn to eat feed instead of bedding. A few choice morsels of peat moss in the crop will swell to about the size of a barrel and is not very readily digestible.

**May 12** — Neighbor Ralph Howman plowed our truck patch and all hands were on deck after supper to plant corn, lima beans, peas, and other garden sass, including setting out tomato and cabbage plants. A nice prosperous garden goes a long way in reducing the grocery bill.

**May 13** — The oldest chicks now have access to free range; they have been turned out so to speak. I am afraid that my troubles are beginning to start. They were three weeks old yesterday and I think high time they were getting outdoors. A couple of them were picked at the base of the tail and, after a good dose of red salve, I decided the easiest way to put a stop to it was to let them go outside.

**May 15**—Walter Buss phoned me last night that the hatching season was drawing to a close. I sold three coops of old cock birds on the auction today. They were a tough looking lot of stock, and from all indications were tough in the flesh also A pressure cooker ought to render them down to soup stock, or at least chicken-flavored soup stock.

**May 17**—Saturday, and Donnie is at home. I had planned big things, but it didn't seem to work out quite according to Hoyle. All the boards were cleaned and the droppings scattered on the field. The front and rear lawns have been mowed. Another set of range hoppers was re-assembled and placed in houses 4, 5 and 6, replacing the cardboard feeders. The Mason jar fountains have been removed and 10-gallon fountains substituted. I didn't have time to clean and wash the jars, but that will be done Monday. Then all baby chick equipment will be stored away for next year. A place for everything and everything in its place, that's my motto.

**May 19**—It's great, says I, to be alive in the spring of the year. There is just so much work to do that should be done and so little time to do it. I guess the nights are too long. I spent all my spare time scything grass and weeds along the drive to the range. This drive is one of the apples of my eye. It is lined on both sides with trees, shrubs, and evergreens. Two or three times each summer the grass is mowed and used as a mulch for the trees.

**May 20**—For a man who is used to feeding biddies and candling eggs, this scythe work is hard on the hands. My hands were so stiff last night from grasping the scythe handles that it took me twice as long to candle and pack the eggs. Fortunately, I didn't drop any of them. It would be a calamity to drop an egg now that the market is on the up and up. I am going to need money to feed this bunch of young stock. I have always thought that little pullets didn't eat very much feed, that it was the little bad boy roosters, but I am being forced to change my mind.

**May 22** — Old, holey burlap bags won't hold anything. Why there should be so many sticking around is beyond my imagination, but the fact is that we do have them. At present, "Kid" White is using them as door mats. When they get worn out as a door mat they are put in the gully to help prevent washing.

**May 24**—Locking the chicks in at night is getting to be an old story. They go in the house at night without any trouble, but in each house there are a few that sit in the door as if they are anticipating my arrival. When I round the corner, they make a wild dash into the night and the fight is on. About the quickest way to get them in again is to stand around and wait. If they get uneasy enough they will dash for the house. On the other hand, if they get contrary or befuddled, it is an aggravating situation, to say the least.

**May 27** — Another day spent in mowing grass; more blisters on the hands. Tomorrow morning I will be so sore and stiff it will take half the day to limber up again. Harold has been working in the truck patch. His idea of raising garden sass is not to have a weed or blade of grass showing. It is a noble resolution, but it takes work.

**May 28**—It is the old pain in the neck, walking around here with my head bending low and eyes glued on the ground. So far I have seen no signs of Old Coxy, but I just can't get over the habit of looking for it. Sooner or later, I am going to find what I don't want to find—bloody droppings. I am only hoping the attack will be light, a skirmish, so to speak.

**May 30**—No egg delivery to the auction today—holiday. We mowed some grass and caught up on a few odds and ends.

**May 31**—And so ends the month. If the first five weeks in brooding chicks is the hardest, then I should have fair weather in the future. Mortality on the entire chick crop to date has been 2½ per cent. This, I think, is good for custom hatched chicks that were not too rigidly culled. I am not counting any laying stock before they are raised. I have had too much experience not to realize that there is many a slip twixt cup and lip, but right now I am sitting Jake.

## *Trapdoor for Range Fence*

Why pullets on range get the idea that the grass on the other side of the fence is better is hard to answer, but it seems that they do fly over the fence sometimes. Then they may spend hours running back and forth, putting their head through the openings in the fence and trying to get back.

Leo Graybill, White Leghorn breeder of Juniata County, Pa., provides trapdoors at intervals along his range fences. Heavy wire rods are bent to a U-shape and suspended from the upper part of the frame so that they swing freely. Since they swing inward only, pullets that get over the fence and try to find their way back discover that this is one place in the fence which will yield to their pushing.

—Everybodys Poultry Magazine, May, 1942.

SKAGIT VALLEY, Washington, Grange members recently auctioned off a duck for $21.56, the proceeds going to the Red Cross, reports the Western Poultry Journal for March, 1942.

A UNITED PRESS dispatch from Vichy, France, tells of eggs selling for $2.00 a dozen in Paris, while a chicken costs $3.00.

# VIEWS OF THE EDITORS

## Labor Unions for Farmers?

Poultry raisers are watching with interest the efforts of John L. Lewis, through his United Mine Workers, to organize eastern and midwestern dairy farmers into United Dairy Farmers. If he succeeds in getting a checkoff of 2 cents a hundredweight on milk, it will only be a matter of time before tribute will have to be paid on every case of eggs as well as other products which farmers market.

If this union for dairy farmers follows the pattern of many of the unions which rose to power in the thirties, the individual member won't have anything to say about policies that are to be followed or who will be his officers. The financial records of the unions are not open to the public as are the records of industrial corporations or farmer cooperatives.

Workers in many industries no longer have the right to their jobs unless they belong to the union They cannot drop membership if dissatisfied. Despite promises, there is nothing to indicate that the situation would be any different in unions established in the farm field by the United Mine Workers.

To combat this move, leading farm cooperatives in the Northeast have organized Free Farmers, Inc. It is an organization of farmers. At the head is a New Jersey dairy farmer who is also a prominent turkey grower. There is no charge to belong to Free Farmers, Inc. It is financed by the cooperatives. Each member signs a pledge not to join the Lewis union and to go to the aid of any fellow-farmer if he is threatened. Free Farmers, Inc., agrees to pay its members up to $10,000 for damage caused to their farms by "strike, riot, civil commotion or malicious damage."

—Everybodys Poultry Magazine, May, 1942.

## New Outlets for Eggs

The egg auctions and other cooperative groups are getting many more eggs than usual, and the number of hucksters and others who buy and distribute these eggs is going down.

We can be almost certain that more food will be sold through stores and less through door-to-door deliveries. The auctions are faced with taking in many new members, without sacrificing grading, and the stores will be getting eggs from many new sources—some of which do not have as much supervised grading as the auctions. These include private auctions, Granges, Farm Bureaus or similar set-ups (in their early stages of egg marketing) and any new groups that may develop.

What is the answer for the auctions? In the first place, most producer members will agree that the auction method of selling should be preserved at all costs. Then, to avoid getting all their eggs into one basket, they have the following outlets:

1. A central marketing agency in the big cities—like the Ohio Farm Bureau with its outlet in Cleveland.
2. Develop more relatively small retail store outlets in nearby cities.
3. More volume to the large retail stores—both independent and chain.

Much depends upon the grading, which means confidence between retailer and producer. If, as reported to us recently, one store gets 50 cases of eggs from a private auction whose grading and packing is not supervised, they will decide to go back to some other, older method.

This all means more, not less, supervision of grading in the various states. We will need many grading stations soon, if the quality program is to grow.

One large chain store has so much confidence in auction eggs that it is buying as much as 50 per cent of the volume on some sales, and they are willing to buy many more top-grade eggs, if grading can be depended upon. Other large stores are buying medium and lower grade eggs. According to the auction managers, these stores are good buyers, although they might pay higher prices in some cases; but there is the ever-present danger of selling too many eggs to one type of buyer.

The answer to that seems to be more grading stations or assembly points controlled by producers. This would provide the added volume for the stores without endangering the auction method.

An auction manager told me recently that a new member is always afraid of grading at the start, and expects to suffer in price received. After he learns the ropes it is easy, and he laughs at his earlier fears.

That's the lesson that many more producers must learn. The stores, too, have a responsibility to encourage quality production by taking fewer ungraded eggs "in trade" and buying more top-grade eggs at the producer co-ops. The Government could help, too, if it bought some graded eggs in a way that would strengthen, not weaken, the quality program.

—Samuel L. Althouse, American Poultry Journal, May, 1942.

## Ceilings Don't Make Cases

Last month OPA fixed ceilings on used egg cases. In brief, the top prices set ranged from 22 cents down to 12 cents, depending upon condition. From a producer's angle, the ruling would seem to be a good thing. But, as Robert Burns once said, "The best laid plans of mice and men gang oft aglee." What happened is that a sufficient number of used cases did not become available, for one reason or another, and as a result many producer groups who formerly were supplied with these were compelled to buy new cases at, naturally, much higher prices than those prevailing for used.

One of the many contributing factors to the shortage of used cases in the eastern area has been the practice of truckers and others of going direct to retail stores and buying up the empties at prices somewhat below the top ceiling set by government officials.

Organizations and firms formerly obtaining second-hand empties under the normal processes of the law of supply and demand found themselves short-stocked when they tried to adhere to the price limits established by OPA. Had adequate enforcement facilities and organization existed to carry out the purposes of the price ceilings there might have been a shift in the movement of used cases back to channels leading to the poultry producers. But in itself, the ceilings could not increase the number of available empties.

—American Egg and Poultry Review, April, 1942.

## Eggs and Weapons, Too!

In referring to our courageous American fighters at home and abroad, Donald Nelson, chairman of the War Production Board, recently said, "They have shown that if we at home give them just a 50-50 chance, by providing them with weapons and the support they need, they will do the rest."

Nelson may have been thinking primarily of instruments that deal out death, when he referred to weapons, but aren't foods that help maintain strength and virility weapons, too?

Poultry raisers who are discouraged by local price situations which do not provide adequate profit margins, or who have difficulty getting shipping materials like egg cases, shouldn't need to be reminded of the sacrifices being made by men in the armed services.

Secretary of Agriculture Wickard summed it up well, when he wrote, "Food will win the war and write the peace." One of his able assistants, Roy F. Hendrickson, Agricultural Marketing Administrator, said recently, "The underfed have little to sacrifice, even less of strength to meet reverses, and they cannot see where public leadership is any great shakes so far as its value to them is concerned. Such groups with listless purpose constitute sectors as vulnerable on the home front as would a fever-stricken regiment on a battle line."

Remarks like these from our high officials in the Department of Agriculture indicate they recognize the importance of food as a weapon in defense, as well as in offense. And they are proud of the fact that eggs —millions of pounds of dried eggs— are making a great contribution to the health of our armed forces at home and abroad.

—O. A. Hanke, Poultry Tribune, May, 1942.

## Combatting Labor Shortages

With the demand for more and more labor in war industries continuing unabated, the pinch is being felt in many poultry and egg establishments. The ingenuity of many plant managers is being taxed to handle and process increased quantities of poultry and eggs in the face of non-existence of men available for the extra task involved. Among some cooperatives, poultrymen members are being called upon to work a few hours each week in their plant at the prevailing hourly wage rate, more, of course, from the standpoint of benefit and loyalty toward their own organization than from a motive of monetary return. In other poultry and egg enterprises, both proprietary and cooperative, women are being employed at jobs formerly held by men who are now either in the armed forces or in war production jobs.

Mechanical equipment is aiding greatly in overcoming some of the labor shortage, but in the face of wartime conditions to which all industries are wholeheartedly adjusting their operations, it behooves management constantly to strive for ways and means to carry on with less man-power than ever before and, at the same time, turn a steadily expanding flow of products into the Food-for-Freedom stockpile.

—American Egg and Poultry Review, April, 1942.

## A Better Egg Pack

In a way, this shortage of egg cases which is causing so much trouble at the present time may be a good thing for eastern eggs. Here in the East, we've always felt that we were producing eggs of good quality, but we have been accustomed to sending them into New York and other eastern markets in old cases. Eggs from the Midwest, however, came in new cases.

Several of the egg auctions have already started to use new cases. Our guess is that they will continue to use them for their better quality eggs even after the present shortage in used cases has been corrected. The eye appeal of those new cases will be reflected in better prices.

—Everybodys Poultry Magazine, May, 1942.

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☞ HAM AND EGGS topped the list of popular restaurant food orders, according to a poll among restaurant men holding their convention in Los Angeles, Calif.

# Turkey Production and Income, 1940-41

By S. A. JONES, E. S. KIMBALL, P. W. SMITH, and R. F. MOORE
Bureau of Agricultural Economics

*Condensed from a Bureau of Agricultural Economics Release*

PRODUCTION of turkeys in 1941 totaled 33,189,000 birds, which was 2 per cent less than in 1940, 42 per cent above the 10-year (1930-39) average, and 25 per cent above the 5-year (1935-39) average. Production was up in 27 States, down in 18 States, and showed no change in 3 States.

Texas led all States in the production of turkeys in 1941 with a total of 3,564,000, followed by California with 3,506,000, and Minnesota with 3,187,000. Other leading States were Iowa, Oregon, Missouri, North Dakota, South Dakota, and Nebraska, in the order named.

The West North Central States produced about 36 per cent of the national total in 1941, the West 27 per cent, the South Central 17 per cent, the East North Central 8 per cent, and the South Atlantic and North Atlantic 6 per cent each.

### Smaller Consumption by Producers

Producers of turkeys consumed 1,220,000 birds in 1941 – 4 per cent of the number produced. Consumption was 6 per cent below that of 1940, 28 per cent below the record high consumption in 1930 and 19 per cent below the 10-year average.

Turkey producers usually consume fewer birds when the price is high and a larger number when the price is low. Thirty-three per cent of the total consumption of turkeys by producers in 1941 was in the West North Central States, 29 per cent in the South Central, 17 per cent in the West, 9 per cent in the South Atlantic, 7 per cent in the East North Central, and 5 per cent in the North Atlantic States.

### Turkey Sales Smaller

About 31,511,000 turkeys were sold from farms in 1941, which was 7 per cent fewer than in 1940 but 45 per cent above the 10-year average sales. About 3,000,000 birds sold in 1941 were late market birds carried over from 1940 and sold during the first two months of the year, while about 4,000,000 were "breeders" disposed of after the breeding season. Of the 33,000,000 birds produced in 1941, less than 8,000,000 were carried into 1942. Of these, about half were "breeders" and the remainder late market birds.

### Price per Bird Up

The average price of $3.13 per bird for turkeys sold in 1941 was 35 per cent above the 1940 price—highest since 1929. It was 30 per cent above the 10-year average and 22 per cent above the 5-year average. Turkey prices in 1941 remained steady during the spring and summer months, instead of making the usual seasonal decline to a low point in July. From June to December, prices increased 36 per cent compared with an advance of 13 per cent during the like period in the 5 years 1936-40.

### Cash Income High

Cash farm income from sales of turkeys in 1941 totaled $98,752,000, the largest on record. Income was 26 per cent above the total in 1940 and 91 per cent above the 10-year average. California led all States in cash income from turkeys, with an income of $12,321,000 in 1941, followed by Texas with $8,968,000, Minnesota with $8,961,000, and Oregon with $5,595,000. These 4 States—with large surplus production – accounted for more than a third of the United States total last year. The West North Central States, where the concentration of turkeys is greatest, received less than a third of the United States total, followed by the Western States, with slightly less.

Gross income, which is income from sales combined with the value of turkeys consumed in the farm households of turkey producers, also reached a record high in 1941. It was $102,382,000, which was 26 per cent above the gross income in 1940 and 85 per cent above the 10-year average.

### Turkey Losses Smaller

Death losses of breeding stock in 1941 were 9 per cent less than in 1940. Death losses of turkeys, especially of young birds, have been decreasing during the past decade because of better disease control and the use of improved sanitary methods in modern management.

### Weight per Turkey Increasing

Since 1929 there has been a gradual increase in the weight per bird sold. In 1929, the weight per bird was 13.2 pounds live weight, and in 1941 it was 15.9 pounds, an increase of 20 per cent. This increase in weight was due mainly to the efforts by breeders to increase the size of birds.

Breeders of bronze turkeys have been especially successful in developing the mammoth bronze. The heaviest birds are found on the Pacific Coast, where the mammoth bronze is in greatest numbers. These large broad-breasted birds are put in cold storage and sold to hotels and restaurants, many of which specialize in year around turkey dinners and also need a large amount of white meat for turkey sandwiches.

### Turkey Inventories Up

Turkeys on farms January 1, 1942, totaled 7,710,000 birds, an increase of 6 per cent from a year earlier and

U. S. Department of Agricultural, Bureau of Agricultural Economics, Washington, D. C.
(Bureau of Agricultural Economics News Release, April 13, 1942)

22 per cent above the 10-year (1931-40) average. About 53 per cent of these birds were "breeders," as compared with 54 per cent a year ago. The remainder were late market birds to be sold in January and February. The number of breeders on January 1, 1942 was 5 per cent larger than a year earlier. More than half of the States had larger numbers of birds this January 1, a few States showed no change, and the remaining States showed decreases.

Turkeys on farms January 1, 1942 had an average value of $3.08 per bird compared with $2.26 a year earlier, and $2.22, as the 10-year average. The total inventory value of turkeys on January 1 was $23,717,000, which was 45 per cent above the value of holdings on January 1, 1941, 71 per cent above the 10-year average and 49 per cent above the 5-year average holdings.

The per capita consumption of turkeys in 1941 was the largest of record—3.64 pounds dressed weight compared with 3.59 pounds in 1940, the 5-year average of 2.66 pounds, and the 10-year average of 2.35 pounds. Consumption in 1941 was double what it was 10 years ago.

Per capita production of turkeys in 1941 was 3.97 pounds live weight compared with 3.86 pounds in 1940 and 3.05 pounds, the 10-year average. The West North Central States led all areas in per capita production, with 12.63 pounds in 1940, followed by the West with 10.04 pounds. The remainder of the country produced less than it consumed, with smallest per capita production—0.85 pounds—in the North Atlantic States.

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# *The Goose Scores a Comeback*

Geese have been generally scored for a good many years.

But today we need fats and oil. The government has announced it will buy up to two-thirds of all the lard produced in the next three to six months. It has asked for two and a half times as many peanuts — for the oil, and half again as many soybeans — specifying the varieties with high oil content.

True, there has been no official request for an increase in the production of geese, but every farmer knows that geese will produce fat quickly and cheaply. And in the face of a probable shortage of fats and oils, geese will inevitably become more valuable. Personally, I shouldn't be surprised to see them worth as much to you, net, as any other poultry you will have to sell next fall.

We can't overlook the fact that geese forage for their own food. They are little trouble to raise and they convert feed that would in most cases be wasted into valuable fat.

A flock of geese on every farm would add materially to the amount of fat available in this country.

Not long ago I was talking with a woman who had roasted four geese and she told me that she poured off 7 pounds of grease. "I was beginning to wonder where I was going to put it all," she said. "Imagine! Seven pounds!" It gives you an idea of the possibilities. And I don't think this is any time to overlook any source of fat—Germany is said to have lost the last war because her supply of fats was exhausted.

In addition to their value for fat, geese are more valuable than ever for their feathers. Just before the outbreak of the war in Europe we were importing more than 6,000,000 pounds of feathers a year — worth over $2,000,000. We got them from Hungary, France, and the Balkans.

Those sources were cut off completely, of course, just at the time when the government started buying pillows for army camps by the hundreds of thousands. More recently, I understand, they have started lining jackets for parachute troops with feathers because they are both light and warm. The only feathers available are those from "home-grown" birds.

The growing demand and the reduced supply created a critical situation and the government promptly put a price ceiling on chicken and turkey feathers and froze the supply of goose feathers—which cannot be sold now without the permission of the War Production Board.

So geese are valuable — for both their fat and their feathers—and the poultry raiser who hatches goslings this spring will be making no mistake!

—Frank Priebe's Weekly Letter to Poultry Raisers, April 23, 1942.

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❡ SOMETHING like a million people in Britain are now keeping hens in their back yards to use up household scraps and garden wastes, according to the British-American Agricultural News Service. The hens being kept this way represent about a quarter of Britain's total pre-war poultry population. While a small ration of "balancer meal" is allowed, most of the feed consists of scraps which otherwise would have been wasted.

❡ A PATENT on a process of deboning poultry carcasses and reshaping the meat in a roll form with a skin covering so that the meat may be cut into slices across the grain for frying has been issued to W. R. Clark and T. R. Clark, Columbia, Mo., according to the American Egg and Poultry Review.

# POULTRY STATISTICS

## Receipts of Eggs and Poultry

The Government purchase program continues to be a dominant feature in egg markets. Influence of this program is reflected in production, marketings, prices, and market supplies. A higher rate of production is indicated by official estimates, and weekly marketings at primary receiving stations in various parts of the country show large increases compared with previous periods.

In the central western states, average weekly receipts per plant during the three weeks ending April 18 were 2,150 cases, compared with a March average of 1,760 cases and an April average last year of 1,440 cases. On the Pacific Coast, current weekly marketings during the first half of the month averaged 1,400 cases per plant, compared with 1,285 cases in March, and 1,120 in April 1941.

March receipts of eggs at the four principal terminal markets – New York, Chicago, Philadelphia, and Boston—were 10.7 per cent greater than in March 1941, but the trend changed in April, with indications of a reduction approximating 8 per cent. There has been no uniformity between markets, however, New York and Philadelphia showed sharp reductions under 1941, Chicago only a slight decrease, and at Boston a slight increase. In the light of heavier production and marketings at country points, these changes in the flow of eggs from producing areas to individual markets are due at least in part to the demands for shell eggs from firms which are drying eggs, principally on Government contracts, and the demand for current storing operations. That Chicago receipts showed relatively little change from a year ago is apparently some indication of the willingness of dealers to store more freely there than is the case at New York and other storage centers. Chicago stored about 600,000 cases during April, with approximately a million cases on hand at the close of the month. New York storages now hold only a third as many eggs as Chicago, and the rate of increase in April was relatively less than at Chicago.

Lighter marketings of live poultry, in the light of heavier production and marketings of eggs, suggest that poultry is being retained for egg production. Commercial hatchery production in March was the largest of record, exceeding March 1941 by 25 per cent. Much of this increase was in

Iowa, Minnesota, Nebraska, the Dakotas, Kansas and Missouri, and is reported to have been chicks hatched for egg laying purposes.

Receipts of dressed poultry at the four markets as a group were 6 per cent heavier in March this year than last, and April will show a slightly heavier gain than this. For the four markets individually, however, New York alone showed an increase, but the receipts there are relatively so much heavier that they more than offset decreases at Chicago, Philadelphia and Boston.

—U. S. D. A. Monthly Egg and Poultry Markets Review.

**Receipts of Eggs (cases) at 4 Markets***

| | March | | | Jan. to Mar., Inc. | | |
|---|---|---|---|---|---|---|
| Geographic Section | 1942 | 1941 | % change | 1942 | 1941 | % change |
| New England | 90,410 | 53,671 | + 68.5 | 251,354 | 167,277 | + 50.3 |
| Middle Atlantic | 296,408 | 213,731 | + 38.7 | 767,245 | 652,626 | + 17.6 |
| South Atlantic | 52,901 | 27,737 | + 90.7 | 85,040 | 59,675 | + 42.5 |
| East North Central | 404,674 | 304,559 | + 32.9 | 844,793 | 730,338 | + 15.7 |
| West North Central | 679,107 | 791,790 | – 14.2 | 1,382,741 | 1,730,441 | – 20.1 |
| South Central | 37,488 | 12,565 | +198.4 | 49,756 | 19,639 | +153.4 |
| Mountain | 10,665 | 18,013 | – 40.8 | 48,711 | 60,398 | – 19.4 |

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| | Plants | 1942 | 1941 | Week | Year |
|---|---|---|---|---|---|
| April 4 | 61 | 86,709 | 68,933 | +6.30 | +25.79 |
| April 11 | 61 | 84,399 | 67,290 | –0.10 | +25.43 |
| April 18 | 47 | 86,264 | 64,936 | +2.90 | +32.84 |
| April 25 | 62 | 88,979 | 69,140 | +1.50 | +28.69 |

# POULTRY STATISTICS

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Receipts of dressed poultry at the four markets as a group were 6 per cent heavier in March this year than last, and April will show a slightly heavier gain than this. For the four markets individually, however, New York alone showed an increase, but the receipts there are relatively so much heavier that they more than offset decreases at Chicago, Philadelphia and Boston.

—U. S. D. A. Monthly Egg and Poultry Markets Review.

### Receipts of Eggs (cases) at 4 Markets*

| Geographic Section | March 1942 | March 1941 | % change | Jan. to Mar., Inc. 1942 | Jan. to Mar., Inc. 1941 | % change |
|---|---|---|---|---|---|---|
| New England | 90,410 | 53,671 | + 68.5 | 251,354 | 167,277 | + 50.3 |
| Middle Atlantic | 296,408 | 213,731 | + 38.7 | 767,245 | 652,626 | + 17.6 |
| South Atlantic | 52,901 | 27,737 | + 90.7 | 85,040 | 59,675 | + 42.5 |
| East North Central | 404,674 | 304,559 | + 32.9 | 844,793 | 730,338 | + 15.7 |
| West North Central | 679,107 | 791,790 | – 14.2 | 1,382,741 | 1,730,441 | – 20.1 |
| South Central | 37,488 | 12,565 | +198.4 | 49,756 | 19,639 | +153.4 |
| Mountain | 10,665 | 18,013 | – 40.8 | 48,711 | 60,398 | – 19.4 |
| Pacific | 6,240 | 3,624 | + 72.2 | 38,187 | 26,219 | + 45.6 |
| Miscellaneous | 525 | 467 | + 12.4 | 1,089 | 1,269 | – 14.2 |
| TOTAL | 1,578,418 | 1,426,157 | + 10.7 | 3,468,916 | 3,447,882 | + 0.6 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic Section | March 1942 | March 1941 | % change | Jan. to Mar., Inc. 1942 | Jan. to Mar., Inc. 1941 | % change |
|---|---|---|---|---|---|---|
| New England | 66,839 | 209,235 | – 68.1 | 411,248 | 725,651 | – 43.3 |
| Middle Atlantic | 2,345,940 | 1,840,655 | + 27.5 | 5,475,774 | 5,120,596 | + 6.9 |
| South Atlantic | 5,211,090 | 2,495,313 | +108.8 | 14,278,613 | 7,231,102 | + 97.5 |
| East North Central | 2,831,930 | 3,809,263 | – 25.7 | 6,816,096 | 9,020,906 | – 24.4 |
| West North Central | 6,905,584 | 7,245,329 | – 4.7 | 25,489,805 | 30,340,032 | – 16.0 |
| South Central | 1,186,777 | 1,057,912 | + 12.2 | 3,671,818 | 4,229,547 | – 13.2 |
| Mountain | 396,529 | 91,424 | +333.7 | 2,661,622 | 2,152,181 | + 23.7 |
| Pacific | 627,049 | 1,668,046 | – 62.4 | 2,821,682 | 4,869,501 | – 42.1 |
| Miscellaneous | 0 | 0 | – | 0 | 0 | – |
| TOTAL | 19,571,738 | 18,417,177 | + 6.3 | 61,626,658 | 63,689,516 | – 3.2 |

*New York, Chicago, Philadelphia and Boston.

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| April 4 | 27 | 55,707 | –0.73 | +40.90 |
| April 11 | 26 | 41,106 | –6.25 | +47.42 |
| April 18 | 23 | 46,385 | +5.86 | +54.83 |
| April 25 | 28 | 57,608 | –0.17 | +34.19 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| April 4 | 61 | 86,709 | 68,933 | +6.30 | +25.79 |
| April 11 | 61 | 84,399 | 67,290 | –0.10 | +25.43 |
| April 18 | 47 | 86,264 | 64,936 | +2.90 | +32.84 |
| April 25 | 62 | 88,979 | 69,140 | +1.50 | +28.69 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1942 | Cases of Eggs 1941 | Cases of Eggs % Chg. | Pounds of Poultry (000 omitted) 1942 | Pounds of Poultry (000 omitted) 1941 | Pounds of Poultry (000 omitted) % Chg. | Pounds of Young Stock (000 omitted) 1942 | Pounds of Young Stock (000 omitted) 1941 | Pounds of Young Stock (000 omitted) % Chg. | Pounds of Fowl (000 omitted) 1942 | Pounds of Fowl (000 omitted) 1941 | Pounds of Fowl (000 omitted) % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Apr. 4 | 444,791 | 276,716 | +60.74 | 1,173 | 1,921 | −38.94 | Discontinued Until Larger Volume is Available | | | 869 | 1,588 | −45.27 |
| Apr. 11 | 457,981 | 321,749 | +42.34 | 1,148 | 1,562 | −26.54 | | | | 830 | 1,153 | −28.06 |
| Apr. 18 | 476,747 | 299,905 | +58.97 | 1,215 | 1,423 | −14.65 | | | | 961 | 1,170 | −17.87 |
| Apr. 25 | 480,627 | 325,066 | −47.86 | 1,421 | 1,507 | − 5.70 | | | | 1,115 | 1,134 | − 1.73 |

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1942 | 1941 | 1940 | Avg. Egg Price per Doz. (Dollars) 1942 | 1941 | 1940 | Avg. Feed Cost per 100 lbs. (Dollars) 1942 | 1941 | 1940 |
|---|---|---|---|---|---|---|---|---|---|
| April 2 | 8.1 | 8.6 | 10.5 | .299 | .244 | .184 | 2.43 | 2.03 | 1.92 |
| April 9 | 8.3 | 8.2 | 10.5 | .295 | .244 | .184 | 2.43 | 2.00 | 1.87 |
| April 16 | 8.0 | 8.6 | 10.6 | .305 | .236 | .187 | 2.41 | 2.03 | 1.99 |
| April 23 | 7.6 | 8.7 | 11.0 | .319 | .235 | .185 | 2.41 | 2.04 | 2.03 |
| April 30 | 7.5 | 8.8 | 10.7 | .319 | .229 | .188 | 2.40 | 2.02 | 2.00 |

—Compiled by N. Y. State Department of Agriculture and Markets.

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1942 | 1941 | 10-Yr. Avg. 1931-40 | Price of Fresh Graded Firsts (Dollars) 1942 | 1941 | Cost of Ration per 100 lbs. (Dollars) 1942 | 1941 |
|---|---|---|---|---|---|---|---|
| April 4 | 5.99 | 6.06 | 6.78 | .285 | .215 | 1.709 | 1.308 |
| April 11 | 5.97 | 6.05 | 6.91 | .285 | .218 | 1.703 | 1.321 |
| April 18 | 5.67 | 6.14 | 6.90 | .299 | .217 | 1.697 | 1.335 |
| April 25 | 5.63 | 6.07 | 6.87 | .305 | .217 | 1.719 | 1.323 |

### Central California Egg-Feed Ratio

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1942 | 1941 | 1940 | 1939 | 1938 | 1937 |
|---|---|---|---|---|---|---|
| March | 8.03 | 8.40 | 9.72 | 7.57 | 8.64 | 10.24 |
| January-March | 7.55 | 7.48 | 9.55 | 7.15 | 8.21 | 9.39 |
| Year | | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 |

—Data Compiled by Edwin C. Voorhies, University of California.

## Egg Prices

### Mid-Month Farm Price of Eggs Per Dozen

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. 1931-40 | 20.8 | 17.6 | 15.6 | 15.4 | 15.4 | 15.3 | 16.8 | 18.4 | 21.5 | 24.4 | 27.7 | 26.3 |
| 1941 | 19.7 | 16.8 | 16.4 | 19.7 | 20.1 | 23.2 | 25.6 | 26.8 | 30.3 | 31.8 | 35.5 | 34.1 |
| 1942 | 31.3 | 27.5 | 25.8 | | | | | | | | | |

Trading in shell eggs at wholesale markets was active during the first week of April prior to the Easter holiday. Immediately following there were some minor temporary declines, but for the month as a whole, prices advanced an average of 1 or 2 cents per dozen in practically all markets. Current wholesale prices are about 7 to 9 cents higher than a year ago, and generally average higher for this season than in some 15 years.

—U. S. D. A. Monthly Egg and Poultry Markets Review.

### 1942 Egg Prices at New York City

| Kind | Apr. 3 | Apr. 10 | Apr. 17 | Apr. 24 | Apr. 24 '41 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 28¾-29 | 29 | 30 | 31¼-31½ | 22½-22¾ |
| Fancy and Extra Fancy White | 31-33 | 31-33½ | 32¾-35 | 33¼-35½ | 24-25½ |
| Nearby and Midwestern White Exchange Specials | 30-30½ | 30¼-30½ | 32¼-32½ | 32¾ | 23½ |
| Pacific Coast Specials | 37¼-37½ | 37¼-37½ | 39¼-39½ | 39¼-39½ | 30-31 |
| Nearby and Midwestern Brown Specials | 29½ | 29¾ | 32 | 32½ | 23¼ |

## Government Purchases

### Purchases of Eggs and Poultry Products by the U. S. D. A.

| Week Ending | Shell Eggs | Dried-Eggs | Canned Poultry | Chicken Broth |
|---|---|---|---|---|
| | Cases | 1,000 lbs. | 1,000 lbs. | 1,000 lbs. |
| April 4 | 2,882 | 12,735 | —— | — |
| April 11 | 5,580 | 20,935 | —— | — |
| April 18 | 5,172 | 8,479 | —— | — |
| April 25 | 2,512 | 7,133 | —— | — |
| 1942 Total to April 25 | 386,460 | 104,627 | 796 | 27 |

Government buying in April was limited almost entirely to dried eggs, as only about 20,000 cases of shell eggs were taken. The Department of Agriculture in two announcements during the month stated prices that would be paid for dried eggs at designated periods through December 31. These prices, on a New York basis, ranged from 95 cents per pound for May delivery up to $1.16 for deliveries during the last half of December. April purchases of dried eggs approached a total of 57 million pounds, not all of which, however, was for current delivery. In March, for example, total purchases were 26,683,000 pounds, but deliveries were only 9,900,000 pounds. Unfilled contracts at the end of March totaled 38,372,000 pounds.

—U. S. D. A. Monthly Egg and Poultry Markets Review.

## Eggs in Storage

**Storage Holdings of Eggs**

| Kind | April 1 5-Yr. Avg. 1937-41 | April 1 1941 | Mar. 1 1942 | April 1 1942 | % Change Apr. '41-Apr. '42 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| Shell Eggs (cases) | | | | | |
| SMA and FSCC | | 25 | 128 | 96 | +284.0 |
| Commercial | 1,136 | 1,065 | 401 | 1,743 | + 58.9 |
| Total | 1,153 | 1,090 | 529 | 1,839 | + 68.7 |
| Frozen Eggs (lbs.) | | | | | |
| SMA and FSCC | | | 12,165 | 11,808 | |
| Commercial | | | 61,601 | 95,367 | |
| Total | 63,528 | 63,428 | 73,766 | 107,175 | + 68.9 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 1,694 | 1,691 | 1,967 | 2,858 | +.68.9 |
| Total (cases) | 2,847 | 2,781 | 2,496 | 4,697 | + 68.8 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

Total U. S. stocks of frozen eggs in storage on April 1 were 107 million pounds, compared with 63½ million pounds for both the same date in 1941—and the 5-year average. Stocks in the 35 cities increased 22 million pounds between April 1 and April 25, which was about 4 million more than the net increase during the comparable period last year. In terms of case equivalents, 35 cities' stocks of frozen eggs on April 25 were 2,455,000 cases or 90,000 less than stocks of shell eggs. On the first of April, the case equivalent of frozen eggs in these markets was 1,860,000 cases or 800,000 more than shell egg holdings.

Stocks of shell eggs in cold storage on April 1 totaled 1,839,000 cases, the heaviest for that date since 1931. Last year's April 1 stocks were 1,090,000 cases, and the 1937-41 average is 1,153,000 cases. There has been the usual active April into-storage movement, stocks in the 35 cities reported weekly increasing from 1 million cases to 2½ million cases between April 1 and April 25. Last year's increase during the corresponding period was about 1 million cases. The current month's net increase in the 35 cities is about the same as 1937-41 average increase.
—U. S. D. A. Monthly Egg and Poultry Markets Review.

## Poultry Meat Prices

Prices of live poultry fluctuated irregularly during April according to class, but net changes for the most part were moderately downward, with the month's average slightly below the March level. In general, April prices are higher than those of last year, but there is a lack of uniformity among classes as to the amount of difference. Receipts of live poultry at central western primary markets have been showing a lower average weekly volume the past few weeks than in any year since 1931. The usual trend of increased receipts at this season has not yet become apparent, although recently there was a moderate increase. The lowest average reached so far this year was during the last week of March. Except for occasional weeks, receipts at these plants since about November 1 have been reductions under preceding weeks, and under a year earlier. In contrast to this, receipts of eggs during the same period have shown consistent increases.
—U. S. D. A. Monthly Egg and Poultry Markets Review.

**Mid-Month Farm Price of Chicken Per Pound**

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. 1931-40 | 13.3 | 13.4 | 13.7 | 14.1 | 14.0 | 13.8 | 13.7 | 13.6 | 13.9 | 13.3 | 13.0 | 12.7 |
| 1941 | 13.7 | 14.0 | 14.4 | 15.7 | 16.3 | 16.3 | 16.8 | 16.3 | 16.3 | 16.0 | 15.5 | 15.8 |
| 1942 | 17.0 | 17.4 | 18.0 | | | | | | | | | |

## Poultry in Storage

**Storage Holdings of Poultry**

| Kind | April 1 5-Yr. Avg. 1937-41 | April 1 1941 | Mar. 1 1942 | April 1 1942 | % Change Apr. '41-Apr. '42 |
|---|---|---|---|---|---|
| | | Thousand Pounds | | | |
| Broilers | 8,547 | 5,593 | 10,924 | 8,521 | +52.3 |
| Fryers | 8,149 | 8,007 | 12,822 | 9,525 | +18.9 |
| Roasters | 19,855 | 22,973 | 31,977 | 24,293 | + 5.7 |
| Fowls | 17,228 | 21,974 | 31,733 | 24,398 | +11.0 |
| Turkeys | 34,716 | 46,966 | 55,768 | 45,376 | − 3.6 |
| Ducks | 1,585 | 1,666 | 3,113 | 1,688 | + 1.3 |
| Miscellaneous | 16,416 | 11,435 | 19,707 | 16,569 | +44.8 |
| Unclassified | | 8,290 | 13,039 | 9,152 | +10.3 |
| Total | 106,496 | 126,904 | 179,083 | 139,522 | + 9.9 |

April 1 total U. S. stocks of frozen poultry totaling 139½ million pounds were the largest of record for that date, being 12½ million pounds above a year earlier, and 33 million pounds above the April 1 five-year (1937-41) average. Turkeys were the only class held in less quantities than last season at this period. The April reduction in the 35 cities reported weekly was considerably greater than that of last year, and at the close of the month stocks were slightly less than in 1941. At the beginning of April, stocks were 9 per cent greater than a year earlier.
—U. S. D. A. Monthly Egg and Poultry Markets Review.

## Egg Breaking Operations

Liquid egg production in March by commercial egg breaking plants is estimated at 80,237,000 pounds, compared with 43,138,000 pounds in March last year. Of this amount, 42,686,000 pounds were frozen, compared with 39,386,000 in February last year, and 3,851,000 pounds were used for immediate consumption, compared with 2,326,000 pounds a year earlier. The remaining amount of 33,700,000 pounds was used for drying. This amount plus the eggs broken out by strictly egg drying plants, produced in March 18,308,462 pounds of dried eggs, compared with 2,539,312 pounds in March last year.

Practically all of the dried egg production is in the whole form. The production of dried albumen in March was 76 per cent less than the total produced in March last year and the production of dried yolks was 40 per cent less. The Agricultural Marketing Administration accepted offers on 26,683,875 pounds of dried eggs in March. Offers accepted April 1 to April 16 totaled 42,144,285 pounds.

### Liquid Egg Production, March 1941-42

| | | March 1941 | March 1942 | % change in 1942 |
|---|---|---|---|---|
| | | Thousand Pounds | | |
| Whole eggs | | 12,251 | 45,414 | +270 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 3,278 | 9,067 | +176 |
| Egg whites (all descriptions) | | 14,667 | 14,202 | – 3 |
| Egg yolks packed | Without salt, sugar, etc. | 4,616 | 3,530 | – 24 |
| | With sugar | 6,255 | 4,975 | – 20 |
| | With salt | 1,985 | 3,049 | + 54 |
| | All yolk emulsions, including glycerine | 86 | — | — |
| Total | | 43,138 | 80,237 | + 86 |

### Dried Egg Production, March 1941-42

| Commodity | Total Reported March 1942 | Same Firm Comparison Mar. 1941 | Same Firm Comparison Mar. 1942 | Same Firm Comparison % change in 1942 |
|---|---|---|---|---|
| | Pounds | | Pounds | |
| Whole | 17,223,431 | 126,276 | 17,223,431 | +13,540 |
| Albumen | 240,893 | 999,460 | 240,893 | – 76 |
| Yolks | 844,138 | 1,413,576 | 844,138 | – 40 |
| Total | 18,308,462 | 2,539,312 | 18,308,462 | + 621 |
| Firms reporting | 49 | 49 | | |

## Frozen Egg Production, 1941

The production of frozen eggs in 1941 totaled 237,182,000 pounds, exceeding the amount frozen in 1940 by 47,604,000 pounds or 25 per cent. The total frozen last year was probably the largest in the history of the industry. Storage stocks of frozen eggs on August 1, 1941, totaled 195,097,000 pounds, the largest of record for that date—exceeding the previous high holdings of August 1, 1937 by 28,221,000 pounds.

In order to have available large quantities of eggs for drying purposes during the latter part of 1942, the amount of eggs frozen this year is expected to be considerably larger than last year. Estimates for the first 3 months of 1942 showed a production of 59,387,000 pounds. This compares with a production of 48,441,000 pounds during the same period in 1941.

### Frozen Egg Production 1940-42

| Month | 1940 | 1941 | 1942 |
|---|---|---|---|
| | Pounds | Pounds | Pounds |
| January | 707,000 | 915,000 | 3,075,000 |
| February | 733,000 | 8,140,000 | 13,626,000 |
| March | 29,481,000 | 39,386,000 | 42,686,000 |
| April | 44,029,000 | 46,826,000 | |
| May | 53,662,000 | 53,303,000 | |
| June | 41,283,000 | 46,560,000 | |
| July | 12,749,000 | 26,555,000 | |
| August | 5,115,000 | 9,848,000 | |
| September | 1,249,000 | 2,845,000 | |
| October | 249,000 | 1,951,000 | |
| November | 216,000 | 588,000 | |
| December | 105,000 | 265,000 | |
| Total | 189,578,000 | 237,182,000 | |

## Hatchery Operations

The output of chicks by commercial hatcheries in March was the largest of record. The output of 242,176,000 chicks was 25 per cent larger than the previous high for March (1941) and about one-half of 1 per cent larger than the record output of April 1939.

Much of the increase was in the West North Central States—Iowa, Minnesota, Nebraska, North Dakota, South Dakota, Kansas, and Missouri. This section showed an increase of 50 per cent over that of March 1941 and accounted for over half of the March increase for the entire country. Substantial increases occurred in other sections of the country except in the Mountain States, the increases amounting to 29 per cent in the South Central States, 21 per cent in the South Atlantic States, 14 per cent in the

### Eggs Set by Commercial Hatcheries

| Geographic Divisions | Mar. 1939 | Mar. 1940 | Mar. 1941 | Mar. 1942 | % chg. from Mar. 1941 | Jan.-Mar. Inc. 1941 | Jan.-Mar. Inc. 1942 | % chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 12,624 | 11,430 | 13,056 | 15,293 | +17 | 36,547 | 40,506 | +11 |
| Middle Atlantic | 29,338 | 26,763 | 28,063 | 32,045 | +14 | 60,079 | 67,820 | +13 |
| South Atlantic | 22,992 | 23,500 | 28,100 | 31,245 | +11 | 59,770 | 64,492 | + 8 |
| E. N. Central | 93,397 | 85,766 | 95,856 | 109,664 | +14 | 156,292 | 177,006 | +13 |
| W. N. Central | 102,159 | 99,470 | 103,271 | 131,428 | +27 | 165,365 | 222,788 | +35 |
| South Central | 38,029 | 37,353 | 40,581 | 45,565 | +12 | 84,084 | 96,896 | +15 |
| Mountain | 7,194 | 7,149 | 7,689 | 7,885 | + 3 | 14,397 | 15,038 | + 4 |
| Pacific | 22,272 | 16,607 | 17,736 | 20,269 | +14 | 42,489 | 46,900 | +10 |
| U. S. | 328,005 | 308,038 | 334,352 | 393,394 | +18 | 619,023 | 731,446 | +18 |

East North Central States, 10 per cent in the Middle Atlantic States, and 9 per cent in the New England and Pacific States respectively. The March output of chicks in the Mountain States was practically the same as in March last year. The production of commercially hatched chicks for the first three months of the year shows an increase of 61,321,000 chicks or 19 per cent over the output of the same period last year. The largest increase was in the West North Central States, amounting to more than half of the increase for the country as a whole.

Much of the March increase in chicks hatched was for egg laying purposes. In certain commercial areas, the demand for chicks for broilers and fryers has been slow since the first of the year. Some hatcheries in the large commercial broiler areas in the East averaged 40 per cent fewer chicks hatched in March this year than last. With emphasis being placed on egg production this year, hatchery operators for the country as a whole reported 36 per cent of all chicks hatched in March were of the light breeds compared with 35 per cent last year. The West North Central States reported 44 per cent of the chicks hatched were of the light breeds compared with 37 per cent last year. Hatcheries reporting sexing in March showed an increase of 45 per cent over the number sexed a year earlier.

### Chicks Hatched by Commercial Hatcheries

| Geographic Divisions | Mar. 1939 | Mar. 1940 | Mar. 1941 | Mar. 1942 | % chg. from Mar. 1941 | Jan.-Mar. Inc. 1941 | Jan.-Mar. Inc. 1942 | % chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 9,478 | 8,242 | 10,968 | 11,914 | + 9 | 25,650 | 27,538 | + 7 |
| Middle Atlantic | 17,604 | 16,536 | 18,009 | 19,796 | +10 | 32,308 | 36,099 | +12 |
| South Atlantic | 15,077 | 14,028 | 17,686 | 21,320 | +21 | 36,642 | 39,959 | + 9 |
| E. N. Central | 48,404 | 42,379 | 50,069 | 56,942 | +14 | 75,722 | 83,454 | +10 |
| W. N. Central | 49,573 | 46,073 | 51,840 | 77,873 | +50 | 71,288 | 104,163 | +46 |
| South Central | 25,255 | 22,892 | 27,590 | 35,547 | +29 | 48,580 | 59,246 | +22 |
| Mountain | 4,121 | 3,854 | 4,207 | 4,188 | – | 6,661 | 6,284 | – 6 |
| Pacific | 14,389 | 11,874 | 13,335 | 14,596 | + 9 | 26,003 | 27,432 | + 5 |
| U. S. | 183,901 | 165,878 | 193,704 | 242,176 | +25 | 322,854 | 384,175 | +19 |

### Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

| Geographic Divisions | Chicks booked Apr. 1 | % Light Breed hatched | | % Heavy Breed hatched | | Sexing |
|---|---|---|---|---|---|---|
| | % change from Apr. 1, 1941 | Mar. 1941 | Mar. 1942 | Mar. 1941 | Mar. 1942 | % change from Mar. 1941 |
| New England | +52 | 6 | 8 | 94 | 92 | +138 |
| Middle Atlantic | +32 | 42 | 43 | 58 | 57 | + 63 |
| South Atlantic | +18 | 13 | 11 | 87 | 89 | + 29 |
| E. N. Central | +39 | 29 | 29 | 71 | 71 | + 54 |
| W. N. Central | +56 | 37 | 44 | 63 | 56 | + 62 |
| So. Central | +33 | 27 | 27 | 73 | 73 | + 53 |
| Mountain | + 3 | 55 | 54 | 45 | 46 | – 5 |
| Pacific | +31 | 77 | 74 | 23 | 26 | + 13 |
| U. S. | +41 | 35 | 36 | 65 | 64 | + 45 |

The big question before the hatchery industry now is whether the present strong demand for chicks will continue into May and June. Orders on April 1 were 41 per cent larger than on the same date last year, and some increase in chicks hatched in April can be expected. To state the question differently—has the expected increase in chicks hatched this year occurred early in the hatching season? Last year a large increase occurred late in the season and approximately 100,000,000 more chicks were hatched during May and June than were hatched during the same months in 1940.

Egg production continues at record high levels with egg prices remaining relatively high. The feed-egg ratio remains favorable for producers. On the basis of prices at Chicago for the week ending April 4, it took 5.99 dozen eggs to buy 100 pounds of poultry ration, compared with 6.06 dozens during the corresponding period last year and 6.78 dozens average for the 10 years 1931-40.

The demand for turkey poults is good. Reports from 87 plants showed 16 per cent more turkey eggs set and 38 per cent more poults hatched this March than in last. Orders for poults on April 1 showed an increase of 34 per cent over the same date last year.

### Turkey Eggs Set, Poults Hatched, and Poults Booked by Commercial Hatcheries

| Geographic Section | Number plants rptg. both years | Eggs set Mar. 1942 | Eggs set Mar. 1941 | % chg. | Salable poults hatched Mar. 1942 | Salable poults hatched Mar. 1941 | % chg. |
|---|---|---|---|---|---|---|---|
| | | Thousands | | | Thousands | | |
| N. Eng., Md. Atl. & S. Atl. | 15 | 178 | 102 | +75 | 47 | 20 | +135 |
| E. N. C., W. N. C., & S. Cent. | 51 | 842 | 747 | +13 | 278 | 184 | + 51 |
| Mt. & Pacific | 21 | 699 | 631 | +11 | 112 | 112 | – |
| U. S. | 87 | 1,719 | 1,480 | +16 | 437 | 316 | + 38 |

# Supplementing Floor Space With Yards

By HORACE DRYDEN
Modesto, California

*Condensed from Dryden Poultry Bulletin*

ONE of the moot questions of commercial poultry production is whether outside yards—either dirt, concrete, or wire sun porches, are a supplement of value to the inside floor area.

Yards and sun porches cost money and they also take up space. Whether the poultryman will gain or lose by the addition to his brooder or laying house of an outside enclosed area will have to be determined by consideration of a rather wide variety of factors. Some of these may be peculiar to the individual enterprise. Others are of a general nature.

The matter of yards is deserving of more thorough investigation by our agricultural experiment stations than it has received in the past. Experiments have shown that good results may be obtained by close confinement of both young and old stock. But the general question—are average results improved by supplemental yard room — is still largely unanswered.

Chickens are creatures of the outside. Have we gained by moving our hens inside, and if so in what ways? Is a compromise between confinement and the out of doors, or between the natural and the artificial, the most economic solution? Let's briefly consider some of the general aspects of the problem.

The primary purposes of yards are to provide more room, get the birds out in the sun, reduce the amount of cleaning necessary on the inside, provide more natural conditions and access to the soil and, in the case of free range, large or double yards, to provide an opportunity for the birds to pick up some of their feed growing outside, principally green feed.

A strong case can be built up for the yards, particularly double yards where the birds are alternated and the soil rested and cultivated.

We have always believed that better fertility and hatchability is obtained with yards, one reason being that the birds are kept scattered and there is less fighting among males and interference in mating. It is hard to beat the tender, green grass shoots that grow in the spring in the production of hatching eggs.

In commercial egg production, however, some good poultrymen believe that the closer you can keep a hen to the mash hopper, the more eggs she will lay.

Any type of yard is not of a great deal of use in extremely hot weather or in wet weather. Floor space inside the house should therefore be adequate and the house should be designed to admit a maximum of sunshine and fresh air to keep the birds in good condition where they are confined.

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### Double Yards Best

If your farm is not infected with intestinal or chronic coccidiosis (not the bloody or cecal type) you may be able to get by with small single yards. But if you have a disease problem, and most farms have in some form or other, it may be the part of prudence to forget yards unless you can provide the double variety.

Considering all aspects of the yard problem for both hens and chicks, we would favor double yards against total confinement, because we believe better results in general may be achieved, and particularly because we have not seen as yet any significant evidence that the problem of disease and parasite infection is rendered any less acute by confining the birds. If litter is used, the various disease organisms and parasites are usually tracked in and the litter provides a good medium for their reproduction.

The nearest approach to total sanitation is probably obtained in the wire floor houses, where the birds contact neither soil nor litter. However, there is other grief with the wire method, and while this system has possibilities and deserves careful study, we are not as yet personally satisfied that chickens will do their best on wire. Some will argue otherwise, and they may be right. One problem in connection with wire floors and wire sun porches is keeping the wet droppings underneath cleaned out. Left alone they produce a quantity of smell and flies that is really something. There is also the matter of keeping the wire clean and in repair.

### Chickens Like Mother Earth

Outside wire sun porches are not as popular as formerly. Chickens don't seem to make the use of them that they do of good old mother earth.

The same applies to concrete and other hard-surfaced yards. They get hot in summer and sticky in wet weather and money spent in their construction could probably better be spent in providing more space per hen under cover inside the house.

If the poultryman is fortunate in having ample room, if his soil drainage is not too bad, and if he can rest the yards part of each year, considerations of economics and good poultry husbandry would still seem to favor the outside dirt yard. But don't let it get too dirty.

# RESULTS OF LAYING TESTS

For the second consecutive month, Rhode Island Red entries owned by Harco Orchards still stand first among all pens and all hens in the country. A Maine hen leads individuals and a Rhode Island pen tops all 13-bird entries.

Rhode Island Reds have a slight edge over all other breeds represented, with 7 out of the top 10 pens, all breeds; 8 pens leading tests to date and 10 pens leading their tests for March; 10 hens leading their tests to date; and average production for the top 10 pens in the breed significantly above the closest competing breed.

Holser's Valley Farm has the high light breed pen, a Storrs White Leghorn entry which is hanging tenaciously to second place among all pens entered. W. H. Wilson's Rhode Island Reds at Georgia are in third and fourth place.

Outstanding among the minor breed entries is the production of Harvey E. Taylor's White Wyandottes, which hold the breed in fifth place among all breeds represented in the pen competition. Ernest Pedigo's Australorps at Arizona are putting forth a creditable showing, the 13-bird entry having earned 1628.35 points to date.

Highest pen for the month was a Rhode Island Red pen owned by Crooks Farms, which earned 389.25 points on 364 eggs at the Pennsylvania test. That's an average of 28 eggs per bird for the 31-day period.

J. A. Hanson's White Leghorns moved into second position nationally during the month and will give all contenders a real race.

## Twenty High Pens, All Breeds, to April 1—(182 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 2009 | 2159.05 | Rhode Island |
| Holser's Valley Farm | White Leghorn | 1998 | 2115.70 | Storrs |
| W. H. Wilson | Rhode Island Red | 1987 | 2114.65 | Georgia |
| W. H. Wilson | Rhode Island Red | 2015 | 2077.25 | Georgia |
| C. C. Hersey | Rhode Island Red | 2032 | 2074.25 | Storrs |
| J. A. Hanson | White Leghorn | 1975 | 2052.00 | Georgia |
| Ford's Riverbank Farm | Rhode Island Red | 1999 | 2048.85 | Storrs |
| Hillview Poultry Breed. Fm. | Rhode Island Red | 1992 | 2044.35 | California |
| Kauder's Pedigreed Leghorns | White Leghorn | 1887 | 2042.50 | Texas |
| Crooks Farm | Rhode Island Red | 1959 | 2041.00 | Pennsylvania |
| Harco Orchards | Rhode Island Red | 1896 | 2036.45 | Storrs |
| Joachim Breeding Farm | New Hampshire | 1933 | 2035.45 | Storrs |
| J. J. Warren | Rhode Island Red | 1912 | 2033.85 | Rhode Island |
| Kauder's Pedigreed Leghorns | White Leghorn | 1930 | 2033.75 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 1893 | 2030.35 | Georgia |
| Peckham Farm | Rhode Island Red | 1932 | 2028.60 | Rhode Island |
| Jack O'Harrow | White Leghorn | 1976 | 2028.50 | Texas |
| Thomas H. Mettler | Rhode Island Red | 2095 | 2027.25 | Storrs |
| George A. Pearce | New Hampshire | 1927 | 2019.15 | Hunterdon, N. J. |
| W. A. Seidel | White Leghorn | 1921 | 2011.70 | Texas |

## High Pen in Each Test to April 1—(182 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 2009 | 2159.05 | Rhode Island |
| Holser's Valley Farm | White Leghorn | 1998 | 2115.70 | Storrs |
| W. H. Wilson | Rhode Island Red | 1987 | 2114.65 | Georgia |
| Hillview Poultry Farm | Rhode Island Red | 1992 | 2044.35 | California |
| Kauder's Pedigreed Leghorns | White Leghorn | 1887 | 2042.50 | Texas |
| Crooks Farm | Rhode Island Red | 1959 | 2041.00 | Pennsylvania |
| George A. Pearce | New Hampshire | 1927 | 2019.15 | Hunterdon, N. J. |
| J. J. Warren | Rhode Island Red | 1885 | 1998.65 | Maine |
| Foreman Poultry Farm | White Leghorn | 1886 | 1994.75 | Missouri |
| E. B. Parmenter | Rhode Island Red | 1941 | 1987.75 | Passaic, N. J. |
| J. A. Hanson | White Leghorn | 1885 | 1972.90 | Western New York |
| Nelson's Leghorn Br. Fm. | White Leghorn | 1802 | 1909.35 | Arizona |
| Crescent Farms | New Hampshire | 1760 | 1851.35 | Florida |
| Foreman Poultry Farm | White Leghorn | 1846 | 1765.10 | Oklahoma |
| J. J. Warren | Rhode Island Red | 1707 | 1753.95 | Michigan |
| Foreman Poultry Farm | White Leghorn | 1630 | 1713.30 | Central New York |
| E. B. Parmenter | Rhode Island Red | 1570 | 1664.65 | Long Island |

## High Pen in Each Test for March

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farms | Rhode Island Red | 364 | 389.25 | Pennsylvania |
| Ford's Riverbank Farm | Rhode Island Red | 357 | 382.55 | Storrs |
| C. T. Avery & Son | Rhode Island Red | 351 | 377.00 | Western New York |
| E. B. Parmenter | Rhode Island Red | 346 | 374.40 | California |
| Crooks Farm | Rhode Island Red | 343 | 373.50 | Passaic, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 346 | 372.20 | Missouri |
| Harco Orchards | Rhode Island Red | 338 | 371.60 | Rhode Island |
| Kauder's Pedigreed Leghorns | White Leghorn | 334 | 366.55 | Texas |
| Babcock's Hatchery | White Leghorn | 348 | 364.55 | Georgia |
| Bodine's Pedigreed Leghorns | White Leghorn | 330 | 358.50 | Central New York |
| Lux Leghorn Land | White Leghorn | 331 | 354.85 | Florida |
| Foreman Poultry Farm | White Leghorn | 343 | 353.45 | Arizona |
| Ford's Riverbank Farm | Rhode Island Red | 335 | 348.35 | Maine |
| Foreman Poultry Farm | White Leghorn | 330 | 346.00 | Long Island |
| Robert Chapman | Rhode Island Red | 340 | 343.45 | Oklahoma |
| George A. Pearce | New Hampshire | 313 | 337.15 | Hunterdon, N. J. |
| Aseltine Poultry Farm | Rhode Island Red | 303 | 317.70 | Michigan |

## High Pen in Each Breed to April 1—(182 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 2009 | 2159.05 | Rhode Island |
| Holser's Valley Farm | White Leghorn | 1998 | 2115.70 | Storrs |
| Joachim Breeding Farm | New Hampshire | 1933 | 2035.45 | Storrs |
| Dryden Poultry Breed. Fm. | Barred Rock | 1882 | 1901.00 | Storrs |
| Harvey E. Taylor | White Wyandotte | 1712 | 1771.85 | Texas |
| Bagby Poultry Farm | White Rock | 1664 | 1753.45 | Texas |
| Ernest Pedigo | Australorp | 1554 | 1628.35 | Arizona |
| Raymond S. Thomas | Ancona | 1470 | 1494.50 | Pennsylvania |
| T. D. Brown | White Minorca | 1376 | 1441.65 | Texas |
| Harry L. Phillips | Columbian Rock | 1337 | 1431.25 | Missouri |
| Horne's Hatchery | Black Minorca | 1279 | 1386.70 | Texas |
| Imperial Breeder Farm | White Giant | 1340 | 1358.70 | Maine |
| Maine Test Pen | Cross | 1247 | 1261.80 | Maine |
| Miami Chick Hatchery | Buff Rock | 1220 | 1251.10 | Michigan |
| Iowa Master Breeers | Buff Orpingtons | 1198 | 1109.50 | Texas |
| Imperial Poultry Farm | New Hampshire White | 1030 | 1101.80 | Missouri |
| C. A. Richardson | Buff Leghorn | 1100 | 1000.20 | Hunterdon, N. J. |
| Henry F. Waitt | Buff Minorca | 1032 | 998.70 | Maine |
| Wellington Wells, Jr. | Silver Laced Wyandotte | 958 | 859.40 | Maine |
| F. G. Romance | Partridge Plymouth Rock | 784 | 756.00 | Florida |
| Philip Maddux | Black Leghorn | 776 | 716.15 | Long Island |

## High Hen in Each Breed to April 1—(182 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 174 | 191.15 | Maine |
| Rinker Poultry Farm | White Leghorn | 174 | 188.35 | Pennsylvania |
| Robert C. Cobb | Barred Rock | 175 | 183.35 | Storrs |
| George A. Pearce | New Hampshire | 177 | 180.40 | Hunterdon, N. J. |
| Paul Hansen | Australorp | 158 | 169.25 | California |
| Carter-Dunham | White Rock | 152 | 164.75 | Georgia |
| Raymond S. Thomas | Ancona | 148 | 161.90 | Pennsylvania |
| Harvey E. Taylor | White Wyandotte | 151 | 161.65 | Texas |
| Imperial Breeder Farm | White Giant | 142 | 152.50 | Maine |
| Maine Test Pen | Cross | 144 | 150.60 | Maine |
| Harry L. Phillips | Columbian Rock | 134 | 141.60 | Missouri |
| Miami Chick Hatchery | Buff Rock | 133 | 141.35 | Michigan |
| T. D. Brown | White Minorca | 132 | 139.50 | Texas |
| Imperial Breeder Farm | New Hampshire White | 129 | 139.20 | Missouri |
| Horne's Hatchery | Black Minorca | 128 | 137.10 | Texas |
| Henry F. Waitt | Buff Minorca | 136 | 123.40 | Maine |
| Iowa Master Breeders | Buff Orpingtons | 121 | 121.35 | Texas |
| Charles A. Richardson | Buff Leghorn | 114 | 106.85 | Hunterdon, N. J. |
| Donald Chandler | Silver Laced Wyandotte | 111 | 103.70 | Maine |
| Philip Maddux | Black Leghorn | 97 | 88.30 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 91 | 82.95 | Florida |

## High Hen in Each Test to April 1—(182 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 174 | 191.15 | Maine |
| Rinker Poultry Farm | White Leghorn | 174 | 188.35 | Pennsylvania |
| Crooks Farm | Rhode Island Red | 171 | 187.00 | Passaic, N. J. |
| Harco Orchards | Rhode Island Red | 171 | 186.80 | Storrs |
| Harco Orchards | Rhode Island Red | 170 | 186.00 | Rhode Island |
| Greenlawn Poultry Farm | Rhode Island Red | 173 | 183.50 | Hunterdon, N. J. |
| A. B. Gillam | White Leghorn | 171 | 183.25 | Georgia |
| Bagby Poultry Farm | Rhode Island Red | 168 | 181.60 | Arizona |
| J. K. Bedell | White Leghorn | 167 | 178.65 | Florida |
| Jack O'Harrow | White Leghorn | 166 | 178.65 | Texas |
| J. J. Warren | Rhode Island Red | 169 | 178.35 | California |
| J. J. Warren | Rhode Island Red | 162 | 178.15 | Western New York |
| Foreman Poultry Farm | White Leghorn | 169 | 177.15 | Missouri |
| J. J. Warren | Rhode Island Red | 160 | 171.85 | Michigan |
| Foreman Poultry Farm | White Leghorn | 166 | 168.40 | Oklahoma |
| Foreman Poultry Farm | White Leghorn | 154 | 168.35 | Central New York |
| E. B. Parmenter | Rhode Island Red | 154 | 166.70 | Long Island |

## Twenty High White Leghorn Pens to April 1—(182 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Holser's Valley Farm | 1998 | 2115.70 | Storrs |
| J. A. Hanson | 1975 | 2052.00 | Georgia |
| Kauder's Pedigreed Leghorns | 1887 | 2042.50 | Texas |
| Kauder's Pedigreed Leghorns | 1930 | 2033.75 | Storrs |
| Kauder's Pedigreed Leghorns | 1893 | 2030.35 | Georgia |
| Jack O'Harrow | 1976 | 2028.50 | Texas |
| W. A. Seidel | 1921 | 2011.70 | Texas |
| Babcock's Hatchery | 2023 | 1996.30 | Pennsylvania |
| Foreman Poultry Farm | 1866 | 1994.75 | Missouri |
| J. A. Hanson | 1891 | 1988.70 | Pennsylvania |
| J. A. Hanson | 1885 | 1972.90 | Western New York |
| Burr's Poultry Farm | 1918 | 1957.10 | Pennsylvania |
| J. A. Hanson | 1882 | 1950.45 | Storrs |
| W. A. Seidel | 1870 | 1943.00 | Texas |
| Rapp's Poultry Farm | 1838 | 1930.55 | Hunterdon, N. J. |
| Sand Springs Home Farm | 1801 | 1924.75 | Texas |
| Babcock's Hatchery | 1905 | 1919.60 | Pennsylvania |
| Kauder's Pedigreed Leghorns | 1831 | 1918.50 | Georgia |
| Rapp's Poultry Farm | 1815 | 1915.70 | Hunterdon, N. J. |
| Nelson's Leghorn Breeding Farm | 1802 | 1909.35 | Arizona |

## Twenty High Rhode Island Red Pens to April 1—(182 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Harco Orchards | 2009 | 2159.05 | Rhode Island |
| W. H. Wilson | 1987 | 2114.65 | Georgia |
| W. H. Wilson | 2015 | 2077.25 | Georgia |
| C. C. Hersey | 2032 | 2074.25 | Storrs |
| Ford's Riverbank Farm | 1999 | 2048.85 | Storrs |
| Hillview Poultry Breeding Farm | 1992 | 2044.35 | California |
| Crooks Farm | 1959 | 2041.00 | Pennsylvania |
| Harco Orchards | 1896 | 2036.45 | Storrs |
| J. J. Warren | 1912 | 2033.85 | Rhode Island |
| Peckham Farm | 1932 | 2028.60 | Rhode Island |
| T. H. Mettler | 2095 | 2027.25 | Storrs |
| R. C. Cobb | 1954 | 2006.85 | Storrs |
| J. J. Warren | 1885 | 1998.65 | Maine |
| E. B. Parmenter | 1941 | 1987.75 | Passaic, N. J. |
| E. B. Parmenter | 1901 | 1962.70 | Storrs |
| G. B. Treadwell | 1895 | 1953.85 | Maine |
| E. B. Parmenter | 1820 | 1951.75 | Storrs |
| Crooks Farm | 1862 | 1942.90 | Storrs |
| David T. Cohen | 1838 | 1933.40 | Georgia |
| Crooks Farm | 1845 | 1920.15 | Storrs |

## Twenty High New Hampshire Pens to April 1—(182 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Joachim Breeding Farm | 1933 | 2035.45 | Storrs |
| George A. Pearce | 1927 | 2019.15 | Hunterdon, N. J. |
| George A. Pearce | 1889 | 1969.30 | Storrs |
| Joachim Breeding Farm | 1792 | 1880.90 | Hunterdon, N. J. |
| Crescent Farms | 1760 | 1851.35 | Florida |
| James H. Horne | 1744 | 1833.15 | Storrs |
| Ebenwood Farm | 1577 | 1786.75 | Rhode Island |
| Hubbard Farms | 1729 | 1782.85 | Western New York |
| Thomas J. Harrold | 1770 | 1778.45 | Georgia |
| Hubbard Farms | 1715 | 1764.80 | Storrs |
| W. G. Ashby | 1636 | 1763.05 | Arizona |
| Joachim Breeding Farm | 1721 | 1740.40 | Pennsylvania |
| Del Rio Farm | 1627 | 1740.00 | Arizona |
| Hubbard Farms | 1732 | 1738.60 | Pennsylvania |
| Pine Mountain Valley Farms | 1704 | 1738.55 | Georgia |
| Hubbard Farms | 1723 | 1736.10 | Georgia |
| Forest Hill Poultry Farm | 1685 | 1728.65 | Storrs |
| Clarence E. Colby | 1658 | 1714.90 | Storrs |
| James H. Horne | 1683 | 1714.65 | Pennsylvania |
| Pine Mountain Valley Farms | 1691 | 1707.15 | Georgia |

## Twenty High Barred Plymouth Rock Pens to April 1—(182 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 1882 | 1901.00 | Storrs |
| J. W. Schaible | 1912 | 1873.55 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 1776 | 1817.55 | Storrs |
| Dryden Poultry Breeding Farm | 1824 | 1800.80 | Pennsylvania |
| Foster Jameson | 1715 | 1799.70 | Maine |
| Harco Orchards | 1863 | 1772.05 | Maine |
| Dryden Poultry Breeding Farm | 1756 | 1754.40 | California |
| A. J. Urquhart | 1765 | 1751.40 | Maine |
| Peachblow Farm | 1712 | 1721.45 | Maine |
| Hockhockson Farm | 1649 | 1713.00 | Hunterdon, N. J. |
| Penn's Poultry Breeding Farm | 1708 | 1717.40 | Texas |
| Dryden Poultry Breeding Farm | 1694 | 1698.55 | California |
| Harco Orchards | 1612 | 1695.75 | Rhode Island |
| Vincent Nasto | 1700 | 1678.80 | Hunterdon, N. J. |
| Harco Orchards | 1604 | 1674.10 | Storrs |
| Fisher Orchards | 1582 | 1672.25 | Pennsylvania |
| Norman Amidon | 1633 | 1648.65 | Maine |
| Riley Poultry Farm | 1652 | 1647.25 | Pennsylvania |
| David T. Cohen | 1618 | 1644.00 | Pennsylvania |
| Riley Poultry Farm | 1671 | 1624.00 | Georgia |

## Twenty High White Plymouth Rock Pens to April 1—(182 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Bagby Poultry Farm | 1664 | 1753.45 | Texas |
| Missouri Valley Poultry Farm | 1609 | 1696.80 | Texas |
| Riley Poultry Farm | 1680 | 1679.55 | Georgia |
| Riley Poultry Farm | 1686 | 1677.45 | Storrs |
| Missouri Valley Poultry Farm | 1654 | 1673.45 | Georgia |
| Carter-Dunham | 1518 | 1618.95 | Texas |
| Ralph De Young | 1576 | 1602.30 | Maine |
| Four Winds Farm | 1539 | 1569.75 | Michigan |
| Carter-Dunham | 1461 | 1548.70 | Georgia |
| Holtzapple Poultry Farm | 1541 | 1548.30 | Georgia |
| Booth Farms and Hatchery | 1480 | 1520.95 | Texas |
| Imperial Breeding Farm | 1534 | 1503.45 | Storrs |
| A. C. Lawton | 1388 | 1502.95 | Rhode Island |
| Pay Streak Hatchery | 1465 | 1498.50 | Pennsylvania |
| Carter-Dunham Farms | 1430 | 1484.95 | Pennsylvania |
| Inspiration Acres | 1562 | 1483.45 | Florida |
| A. C. Lawton | 1433 | 1479.55 | Storrs |
| Robert K. Shearer | 1530 | 1468.90 | Pennsylvania |
| Superior Hatchery | 1439 | 1466.25 | Texas |
| Booth Farms | 1376 | 1456.60 | Missouri |

## Average Production and Mortality, Each Test, to April 1—(182 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for Mar. | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Arizona | 390 | 120.44 | 126.34 | 24.96 | 1.28 | 6.67 |
| Rhode Island | 611 | 117.31 | 123.07 | 24.98 | 1.14 | 8.84 |
| Storrs | 1,352 | 119.45 | 122.06 | 24.42 | 1.55 | 6.14 |
| Pennsylvania | 1,105 | 119.37 | 120.57 | 24.20 | .27 | 6.43 |
| Georgia | 1,326 | 111.82 | 120.54 | 25.54 | 2.03 | 8.07 |
| Hunterdon, N. J. | 624 | 118.27 | 120.44 | 24.36 | 1.12 | 7.38 |
| Texas | 1,456 | 113.67 | 116.96 | 24.56 | 2.19 | 6.87 |
| Florida | 1,118 | 108.79 | 110.81 | 24.36 | 1.25 | 6.89 |
| Passaic, N. J. | 871 | 107.10 | 109.03 | 24.32 | 1.14 | 9.53 |
| California | 598 | 107.27 | 108.69 | 24.26 | 1.33 | 6.69 |
| Maine | 988 | 106.59 | 106.32 | 23.94 | 1.22 | 5.88 |
| Western New York | 975 | 98.57 | 102.16 | 24.72 | 1.33 | 5.75 |
| Oklahoma | 650 | 96.07 | 95.91 | 23.96 | 1.39 | 7.39 |
| Long Island | 1,092 | 92.28 | 92.00 | 23.92 | 1.83 | 7.15 |
| Central New York | 1,066 | 88.39 | 91.94 | 24.80 | 1.89 | 6.30 |
| Missouri | 780 | 86.64 | 91.75 | 25.16 | 1.79 | 7.44 |
| Michigan | 871 | 89.84 | 88.59 | 23.72 | 2.53 | 11.49 |
| All Tests | 15,873 | 105.91 | 108.65 | 24.47 | 1.05 | 7.34 |

## *Deposits on Cartons and Cases*

Increasing costs and scarcity of egg cases and cartons are creating quite a problem with many poultrymen. This is especially true with the independent shipper and the poultryman retailing eggs. Some poultrymen have solved this problem by demanding a deposit of 22 cents on each case and 2 cents on each carton when sold at retail. Poultrymen reporting this plan find they have no difficulty in getting back egg cases and cartons. The housewife takes good care of the carton when she knows it means a saving of 2 cents.

—J. C. Taylor in release from N. J. College of Agriculture.

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# Egg and Chicken Income, 1940-41

*Bureau of Agricultural Economics News Release*

DURING 1941 about 636,613,000 chickens were produced on farms—the largest number since 1936. The total was 18 per cent above production in 1940, 1 per cent above the 10-year (1930-39) average, and 7 per cent above the 5-year (1935-39) average.

The number of "commercial broilers" (young chickens of the heavy breeds, 2 to 4 pounds, under 18 weeks old raised for meat, and not included in farm production) produced in 1941 was 163,295,000 birds, with an average live weight of 2.96 pounds. Production of commercial broilers has increased about five-fold during the last 7 years. In 1941 it was 32 per cent above 1940.

## Chicken Prices Up

The average price per chicken sold from farms in 1941 was 64.2 cents live weight, compared with 54.0 cents in 1940, with 54.6 cents as the 10-year average, and 58.7 cents as the 5-year average.

## Farm Sales Increase

About 384,099,000 chickens were sold from farms in 1941, an increase of 9 per cent above sales in 1940, 6 per cent above the 5-year average, but 4 per cent below the 10-year average sales. Cash income from these sales totaled $246,601,000 in 1941—largest since 1931 and 30 per cent above the 1940 cash income.

## Farm Poultry Use Down

The consumption of chickens in the household of farm producers was 201,490,000 in 1941, or 1 per cent fewer than in 1940 and 13 per cent

U. S. Department of Agriculture, Bureau of Agricultural Economics

## Production and Disposition of Chickens, 1934-41

| Year | Raised | Lost | Produced | Change in Inventory Increase | Change in Inventory Decrease | Consumed in Farm Household | Sold |
|---|---|---|---|---|---|---|---|
| | Thousands | | | | | | |
| 1934 | 644,424 | 66,102 | 578,322 | | 43,979 | 218,990 | 403,311 |
| 1935 | 658,344 | 60,575 | 597,769 | 13,488 | | 218,796 | 365,485 |
| 1936 | 715,034 | 64,426 | 650,608 | 20,475 | | 235,144 | 394,989 |
| 1937 | 601,147 | 68,567 | 532,580 | | 34,297 | 215,067 | 351,810 |
| 1938 | 650,685 | 67,478 | 583,207 | 28,967 | | 227,810 | 326,430 |
| 1939 | 696,655 | 75,592 | 621,063 | 19,697 | | 224,783 | 376,583 |
| 1940 | 617,005 | 78,142 | 538,863 | | 15,379 | 203,058 | 351,184 |
| 1941 | 716,830 | 80,217 | 636,613 | 51,024 | | 201,490 | 384,099 |

below the 10-year average. The North Central States accounted for 39 per cent of all chickens consumed by farm producers in the United States during 1941; the South Central States, 32 per cent; and the North Atlantic States, 5 per cent. But farm producers in the South Central States consumed the largest share of their own production of chickens — 47 per cent; farm producers in the North Central States consumed about 25 per cent of their own chickens; and the North Atlantic States, 13 per cent.

Gross income, which is the income from sales plus the value of chickens consumed in households of farm producers, was $367,975,000 in 1941. This was 26 per cent more than in 1940, and 9 per cent above the 10-year average.

The number of all chickens (not including broilers) on farms January 1, 1942, was 473,933,000 birds. This was 12 per cent more than on January 1, 1941, and 12 per cent more than the 10-year (1931-40) average. It was a fraction of 1 per cent less than the peak number of 1928. Considerably higher chicken and egg prices during the hatching season in 1941 were conducive to a large increase in numbers, especially in the West North Central and South Central States.

### Egg Production Largest Ever

About 42 billion eggs were produced in 1941. This is 6 per cent more than the previous high record production in 1940 and 14 per cent above the 10-year average. Production per layer was 110 eggs per hen and pullet on hand at the beginning of the year, compared with the previous record high of 106 eggs in 1938. Total egg production, as well as the rate of lay, was above that of 1940 in all parts of the country.

Average price per dozen eggs was 23.5 cents compared with 18.0 cents in 1940, with 19.0 cents as the 10-year average, and 20.8 cents as the 5-year average.

### Sales of Eggs Up

About 33½ billion eggs were sold from farms in 1941, compared with 31 billion in 1940 and a 10-year average of about 28 billion eggs. Of the total sales in 1941, the West North Central States accounted for 28 per cent, the East North Central 23 per cent, the North Atlantic 17 per cent, the South Central 14 per cent, the West 11 per cent and the South Atlantic 7 per cent. Cash income from sales of eggs in 1941 was $657,958,000—42 per cent above that of 1940 and 47 per cent above the 10-year average.

### Fewer Eggs for Farm Hatching

Eggs used for farm hatching in 1941 totaled 412 million compared with 423 million in 1940. Farm hatching of eggs has been decreasing since 1927, while the purchases of baby chicks from hatcheries have been increasing. About 5 per cent of all eggs produced on farms in 1941

## Production and Disposition of Eggs, 1934-41

| Year | Hens and Pullets Jan. 1 | Eggs per Layer | Eggs Produced | Eggs used for Farm Hatching | Eggs Consumed in Farm Household | Eggs Sold |
|---|---|---|---|---|---|---|
| | Thousands | Number | Millions | | | |
| 1934 | 385,341 | 89 | 34,429 | 757 | 7,406 | 26,266 |
| 1935 | 350,407 | 96 | 33,609 | 665 | 7,205 | 25,739 |
| 1936 | 362,619 | 95 | 34,534 | 670 | 7,416 | 26,448 |
| 1937 | 379,754 | 99 | 37,564 | 518 | 7,884 | 29,162 |
| 1938 | 352,964 | 106 | 37,356 | 528 | 8,204 | 28,624 |
| 1939 | 376,141 | 103 | 38,843 | 513 | 8,238 | 30,092 |
| 1940 | 392,655 | 101 | 39,585 | 423 | 8,108 | 31,054 |
| 1941 | 381,372 | 110 | 41,766 | 412 | 7,789 | 33,565 |

## Chickens on Farms January 1, and Value, 1935-42

| Year | Hens and Pullets | Other Chickens | All Chickens Number | All Chickens Value per Head | All Chickens Total Dollar Value |
|---|---|---|---|---|---|
| | Thousands | Thousands | Thousands | Cents | Thousands |
| 1935 | 350,407 | 39,551 | 389,958 | 54.4 | 212,071 |
| 1936 | 362,619 | 40,827 | 403,446 | 75.5 | 304,725 |
| 1937 | 379,754 | 44,167 | 423,921 | 65.6 | 278,120 |
| 1938 | 352,964 | 36,660 | 389,624 | 75.6 | 294,718 |
| 1939 | 376,141 | 42,450 | 418,591 | 70.0 | 292,852 |
| 1940 | 392,655 | 45,633 | 438,288 | 60.5 | 265,000 |
| 1941 | 381,372 | 41,537 | 422,909 | 65.4 | 276,427 |
| 1942 | 425,238 | 48,695 | 473,933 | 83.2 | 394,159 |

## Income from Chickens, 1934-41

| Year | Price per Head | Cash Income from Sales | Value of Chickens Consumed on Farm | Gross Income |
|---|---|---|---|---|
| | Cents | Thousand Dollars | | |
| 1934 | 42.3 | 170,772 | 88,444 | 259,216 |
| 1935 | 56.7 | 207,361 | 116,429 | 323,790 |
| 1936 | 60.6 | 239,181 | 134,416 | 373,597 |
| 1937 | 63.9 | 224,826 | 129,145 | 353,971 |
| 1938 | 59.8 | 195,195 | 125,088 | 320,283 |
| 1939 | 52.7 | 198,597 | 110,490 | 309,087 |
| 1940 | 54.0 | 189,640 | 103,176 | 292,816 |
| 1941 | 64.2 | 246,601 | 121,374 | 367,975 |

Income from Eggs, 1934-41

| Year | Price per Dozen | Cash Income from Sales | Value of Eggs Consumed in Farm Household | Gross Income |
|---|---|---|---|---|
| | Cents | | Thousand Dollars | |
| 1934 | 17.0 | 372,876 | 100,685 | 473,561 |
| 1935 | 23.4 | 501,551 | 134,283 | 635,834 |
| 1936 | 21.8 | 480,808 | 129,701 | 610,509 |
| 1937 | 21.3 | 517,418 | 134,164 | 651,582 |
| 1938 | 20.3 | 485,092 | 131,436 | 616,528 |
| 1939 | 17.4 | 437,386 | 113,707 | 551,093 |
| 1940 | 18.0 | 464,667 | 115,490 | 580,157 |
| 1941 | 23.5 | 657,958 | 146,533 | 804,491 |

was used for hatching, either on the farm or in commercial hatcheries, and about 21 per cent of the eggs used for hatching was set on farms.

### Weight per Bird Sold Lower

The average weight per bird sold from farms in 1941 was 4.05 pounds live weight compared with 4.10 pounds in 1940, and with 3.86 pounds as the 10-year average. The heaviest average weight per bird is found in the North Central States and the lightest in the commercial egg producing areas in the West, where the White Leghorn breed of chickens predominates.

### Commercial Broiler Production

The term "commercial broilers," as used in this publication includes all young chickens of the heavy breeds, 2 to 4 pounds live weight, under 18 weeks old, raised for meat and not as a by-product in the production of pullets for egg production. It does not include White Leghorn sexed cockerels which are hatched incidental to the production of pullets for egg production. Commercial broiler production is not included in farm production estimates.

In 1941, about 163,295,000 commercial broilers were produced, which is an increase of 32 per cent from 1940, and 127 per cent above the 7-year (1934-40) average. The price per head sold was 54.8 cents, compared with 51.0 cents in 1940 and with 55.6 cents as the 7-year average. The gross income from commercial broilers in 1941 was

$89,468,000 compared with $63,125,000 in 1940.

Commercial Broiler Production and Income (Not included in farm production)

| Year | Number produced | Price per head | Gross income |
|---|---|---|---|
| | Thousands | Cents | Thous. Dol |
| 1934 | 34,030 | 54.9 | 18,694 |
| 1935 | 42,890 | 57.5 | 24,651 |
| 1936 | 53,155 | 59.2 | 31,493 |
| 1937 | 67,915 | 61.7 | 41,876 |
| 1938 | 82,420 | 55.3 | 45,609 |
| 1939 | 100,055 | 49.6 | 49,661 |
| 1940 | 123,696 | 51.0 | 63,125 |
| 1941 | 163,295 | 54.8 | 89,468 |

### Fewer Eggs Used on Farms

About 7,789 million eggs were consumed in the households of farm producers in 1941, 4 per cent fewer than in 1940 and about 19 per cent of all eggs produced on farms. The value of these eggs consumed was $146,533,000 compared with $115,490,000 in 1940.

Gross farm income from eggs in 1941 was $804,491,000, which was 39 per cent above the gross income in 1940 and 43 per cent above the 10-year average. The combined gross farm income from chickens and eggs in 1941 was $1,172,466,000, compared with $872,973,000 in 1940, an increase of 34 per cent.

Per capita consumption of chickens in the United States in 1941 was 20.3 pounds dressed weight, compared with 18.9 pounds in 1940 and 19.4 pounds the 10-year average. Per capita consumption of eggs in 1940 was 319 eggs, compared with 300, the 5-year (1935-39) average, and 306 eggs, the 10-year average. Incomplete data in 1941 made it impossible to compute per capita egg consumption for the year.

Per capita production of chickens in the United States in 1941 was 24.7 pounds live weight, compared with 20.9 pounds in 1940 and 21.3 pounds, the 5-year average. Per capita production of eggs in 1941 was 345 eggs compared with 330 eggs in 1940 and a 10-year average of 317 eggs.

## *Don't Crowd Pullets*

Successful poultrymen have found that it pays to avoid crowding pullets on hot nights. They spread the birds out in low-cost range shelters which any man handy with a saw and hammer can build in a few hours. Built on skids, these shelters can be moved from one spot to another.

If there isn't time to build shelters before pullets go out on range, set up some sawhorses, place strips of wood across them, and let some pullets roost outside. An occasional thunderstorm won't hurt them half as much as crowding all of them into a house that's too small.

—Checkerboard News, April-May, 1942.

NAT FLOYD, New York Times correspondent who escaped from Bataan shortly before the American and Filipino forces were overwhelmed by the Japs, told how eggs brought 25 cents each early in the siege. Just before he managed to get away, they were selling at $1.00 each in the black market.

# Poultry Product-Feed Price Ratios Expressed in Terms of Feed

*Condensed from the Poultry and Egg Situation*

THE Department of Agriculture has used two general methods of expressing ratios between prices of feed and prices of livestock products. For the past several years, all ratios except those for poultry products have been expressed in terms of the amount of feed one unit of the product would buy. For poultry products, the ratio has been expressed as the quantity of product required to purchase 100 pounds of feed. These have been called feed-egg, feed-chicken, and feed-turkey price ratios. These ratios were computed by dividing the price of 100 pounds of feed by the price per unit of poultry products.

### Why Make the Change?

Because of the widespread use now being made of the ratios for poultry products—especially for eggs—by people dealing with many other products as well as poultry, it has become particularly desirable to express all ratios on a common basis.

Data presented in the accompanying tables on poultry product-feed price ratios are comparable with ratios published by the U. S. D. A. for other commodities. Since these ratios are computed by dividing the price per unit of poultry products by the price of feed per pound—the opposite of the former method—they are called egg-feed, chicken-feed, and turkey-feed price ratios.

### Ratios Used the Same

The ratios computed on the new basis can be used for essentially the same purposes as those formerly published. It is necessary, of course, when interpreting them, to realize that a favorable ratio is denoted by a high ratio rather than a low one and vice versa. In mid-April, for example, the feed-egg ratio, based on United States average prices, was 6.5 dozens of eggs. In April 1941, the feed-egg ratio was 6.3 dozens of eggs. In other words, the feed-egg ratio was a little less favorable in April this year than last because slightly more eggs were required to buy a given quantity of feed than in April 1941.

The egg-feed ratio in April this year was 15.3 pounds of feed (per dozen eggs) compared with 15.9 pounds a year earlier. Thus, the egg-feed ratio also can be said to have been a little less favorable than in April last year because a dozen eggs was equivalent in price to a slightly smaller quantity of feed than in April 1941. Both ratios indicate that the relationship between feed prices and egg prices was less favorable to producers than in April 1941 by about the same degree.

### Uses Made of Price Ratios

The most important use made of any ratio between feed prices and livestock product prices is in forecasting future production. A ratio alone, of course, such as the egg-feed ratio, cannot be used to show whether poultrymen are making or losing money at any one time. Many factors other than feed costs and egg prices determine the profitableness of an individual laying flock. For an individual poultryman to determine the profitability of his flock, fairly detailed records must be kept.

The egg-feed ratio, only provides a rough means of forecasting what the majority of producers will decide on the basis of their financial outcome during a given period. A ratio based on average prices, therefore, is used primarily by those individuals who are particularly interested in future production trends, and are used relatively little by individual

**Egg-feed price ratio, 1910-42***

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Av. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910 | 22.4 | 19.1 | 15.3 | 13.9 | 13.8 | 13.6 | 13.3 | 13.8 | 16.3 | 19.8 | 24.2 | 27.0 | 17.7 |
| 1911 | 23.8 | 17.4 | 14.1 | 13.1 | 12.6 | 12.0 | 11.7 | 12.6 | 14.2 | 16.5 | 20.0 | 22.6 | 15.9 |
| 1912 | 22.3 | 19.9 | 15.3 | 11.8 | 10.9 | 10.8 | 10.5 | 12.7 | 13.6 | 19.0 | 25.0 | 27.0 | 16.6 |
| 1913 | 23.4 | 19.4 | 16.2 | 14.0 | 13.6 | 13.7 | 13.2 | 13.6 | 15.5 | 19.3 | 23.5 | 24.3 | 17.5 |
| 1914 | 22.3 | 18.9 | 16.1 | 11.7 | 12.0 | 12.3 | 12.6 | 13.2 | 14.9 | 16.5 | 20.8 | 23.8 | 16.3 |
| 1915 | 22.1 | 15.5 | 10.7 | 10.6 | 10.5 | 10.7 | 11.0 | 11.9 | 14.9 | 19.1 | 24.0 | 24.8 | 15.5 |
| 1916 | 21.3 | 17.4 | 13.1 | 12.5 | 13.0 | 13.3 | 13.7 | 13.9 | 15.6 | 17.8 | 19.5 | 21.0 | 16.0 |
| 1917 | 20.3 | 18.0 | 11.9 | 11.2 | 10.3 | 10.1 | 9.2 | 9.4 | 11.7 | 13.3 | 15.6 | 17.5 | 13.2 |
| 1918 | 18.1 | 16.1 | 10.4 | 10.2 | 10.4 | 10.1 | 11.2 | 11.7 | 13.1 | 15.7 | 19.0 | 21.6 | 14.0 |
| 1919 | 19.8 | 12.8 | 12.2 | 12.3 | 12.6 | 11.5 | 11.7 | 12.3 | 13.8 | 17.8 | 21.3 | 24.4 | 15.2 |
| 1920 | 20.4 | 16.0 | 12.9 | 10.9 | 10.6 | 9.9 | 11.0 | 13.4 | 17.0 | 23.0 | 33.1 | 40.9 | 18.3 |
| 1921 | 35.0 | 20.7 | 18.3 | 15.0 | 14.5 | 15.0 | 18.9 | 23.6 | 26.6 | 36.6 | 49.1 | 48.7 | 26.8 |
| 1922 | 29.0 | 26.1 | 14.5 | 14.5 | 15.0 | 15.0 | 15.1 | 15.3 | 20.3 | 25.3 | 30.6 | 31.8 | 21.0 |
| 1923 | 24.5 | 18.9 | 15.6 | 13.0 | 13.0 | 12.7 | 13.2 | 14.8 | 18.6 | 21.3 | 29.1 | 30.3 | 18.8 |
| 1924 | 23.6 | 22.1 | 13.4 | 12.6 | 13.1 | 13.7 | 12.9 | 13.6 | 16.3 | 19.1 | 24.1 | 25.0 | 17.5 |
| 1925 | 22.8 | 16.4 | 11.3 | 12.4 | 12.3 | 12.7 | 14.3 | 15.1 | 16.5 | 22.3 | 28.7 | 29.9 | 17.9 |
| 1926 | 22.6 | 18.3 | 15.8 | 16.4 | 16.6 | 16.8 | 16.6 | 16.1 | 19.7 | 23.1 | 30.0 | 32.3 | 20.4 |
| 1927 | 25.0 | 19.2 | 13.8 | 13.5 | 12.3 | 9.8 | 11.3 | 12.6 | 15.9 | 20.1 | 25.7 | 26.7 | 17.2 |
| 1928 | 23.2 | 17.0 | 13.0 | 12.1 | 11.8 | 11.8 | 13.0 | 15.2 | 17.9 | 21.0 | 25.6 | 27.0 | 17.4 |
| 1929 | 20.3 | 18.5 | 16.0 | 13.5 | 14.7 | 15.9 | 15.7 | 16.4 | 18.4 | 21.3 | 26.7 | 28.3 | 18.8 |
| 1930 | 24.1 | 20.2 | 14.0 | 14.4 | 13.1 | 12.0 | 13.1 | 12.9 | 15.6 | 17.8 | 24.8 | 21.2 | 16.9 |
| 1931 | 18.6 | 12.4 | 15.0 | 14.4 | 12.3 | 13.6 | 14.9 | 18.6 | 23.3 | 31.6 | 33.1 | 33.4 | 20.1 |
| 1932 | 22.8 | 17.5 | 14.5 | 14.3 | 15.0 | 16.4 | 18.8 | 22.9 | 28.3 | 42.4 | 53.0 | 59.4 | 27.1 |
| 1933 | 45.3 | 22.9 | 19.9 | 15.8 | 14.1 | 11.7 | 11.2 | 12.6 | 16.3 | 23.6 | 26.2 | 23.5 | 20.3 |
| 1934 | 18.8 | 16.1 | 14.3 | 13.3 | 13.0 | 11.6 | 11.8 | 12.3 | 14.6 | 15.9 | 19.3 | 16.9 | 14.8 |
| 1935 | 15.5 | 15.9 | 11.9 | 12.5 | 13.6 | 14.0 | 15.1 | 16.2 | 19.0 | 20.8 | 26.2 | 25.7 | 17.2 |
| 1936 | 20.1 | 20.6 | 15.0 | 14.5 | 15.4 | 16.0 | 13.4 | 12.2 | 13.2 | 15.5 | 18.5 | 16.8 | 15.9 |
| 1937 | 12.0 | 10.2 | 10.1 | 9.4 | 8.4 | 8.7 | 9.6 | 11.6 | 14.1 | 20.6 | 25.9 | 23.9 | 13.7 |
| 1938 | 18.8 | 14.4 | 14.6 | 14.4 | 16.2 | 17.2 | 18.9 | 22.1 | 26.3 | 30.7 | 33.0 | 30.3 | 21.4 |
| 1939 | 19.1 | 17.1 | 16.6 | 15.4 | 14.2 | 14.2 | 16.4 | 18.4 | 17.8 | 21.4 | 23.6 | 18.0 | 17.7 |
| 1940 | 15.4 | 16.9 | 12.7 | 12.0 | 11.8 | 11.8 | 13.9 | 14.7 | 18.1 | 20.7 | 22.8 | 23.8 | 16.2 |
| 1941 | 17.2 | 14.8 | 14.2 | 15.9 | 15.6 | 17.5 | 18.7 | 19.3 | 20.6 | 22.7 | 25.5 | 23.2 | 18.8 |
| 1942 | 19.8 | 16.8 | 15.5 | 15.4 | | | | | | | | | |

* Number of pounds of feed equal in value to 1 dozen eggs at local markets.

Bureau of Agricultural Economics, United States Department of Agriculture, Washington, D. C.
(The Poultry and Egg Situation, May, 1942)

producers. When the egg-feed price ratio is high, feed costs are low in relation to egg prices, and, other things being equal, it is more profitable to produce eggs than when the ratio is low.

Other considerations also are important in interpreting a given ratio between prices of poultry products and feed prices. Foremost among these are the level of prices in general and the relative favorableness of ratios for other livestock enterprises. Either of these may more than offset the direct effects on production of a given ratio. In the depression years, for example, the egg-feed price ratio was much more favorable than average, but cash farm income was at such a low level that farmers had difficulty in meeting fixed costs after paying for feed. When prices in general are relatively high, egg-producing operations may be profitable despite a ratio less favorable than average. The second important consideration—the relative favorableness of other ratios—has its widest application in the Midwest, but applies, at least to some extent, in all areas of the country. With production of all livestock products at or above previous records, it is particularly necessary to consider the relative positions of all ratios when appraising the outlook for the farm production of any one product.

**Chicken-feed price ratio, 1910-42***

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Av. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1910 | 8.3 | 8.4 | 8.7 | 9.1 | 9.3 | 9.3 | 9.1 | 9.0 | 9.2 | 9.5 | 9.8 | 9.6 | 9.2 |
| 1911 | 9.6 | 9.5 | 9.6 | 9.6 | 9.5 | 9.2 | 8.9 | 8.6 | 8.4 | 8.0 | 7.7 | 7.5 | 9.0 |
| 1912 | 7.6 | 7.7 | 7.6 | 7.4 | 7.1 | 7.1 | 6.9 | 7.9 | 7.5 | 9.0 | 9.9 | 10.3 | 7.9 |
| 1913 | 10.2 | 10.1 | 10.3 | 10.3 | 10.1 | 9.8 | 10.5 | 9.8 | 9.2 | 9.6 | 8.6 | 8.4 | 10.0 |
| 1914 | 8.6 | 9.0 | 9.0 | 9.3 | 9.0 | 9.4 | 9.7 | 9.0 | 8.5 | 8.4 | 8.2 | 8.0 | 9.0 |
| 1915 | 7.6 | 7.4 | 7.6 | 7.6 | 7.6 | 8.1 | 8.2 | 8.4 | 8.7 | 9.2 | 9.4 | 8.9 | 8.2 |
| 1916 | 8.5 | 8.7 | 9.0 | 9.3 | 9.5 | 9.8 | 9.7 | 9.1 | 8.7 | 8.4 | 7.8 | 7.5 | 8.8 |
| 1917 | 7.5 | 7.6 | 7.4 | 6.8 | 6.0 | 6.0 | 5.5 | 5.2 | 6.0 | 6.4 | 6.4 | 6.7 | 6.3 |
| 1918 | 6.8 | 7.1 | 6.8 | 7.0 | 7.0 | 7.3 | 7.9 | 7.8 | 7.9 | 7.8 | 8.0 | 8.2 | 7.5 |
| 1919 | 7.9 | 8.0 | 8.4 | 8.8 | 8.7 | 8.4 | 8.3 | 7.9 | 8.0 | 8.1 | 7.9 | 7.7 | 8.3 |
| 1920 | 7.8 | 8.5 | 8.6 | 8.5 | 7.9 | 7.5 | 8.2 | 8.4 | 9.4 | 10.3 | 12.0 | 12.6 | 9.0 |
| 1921 | 14.0 | 14.9 | 15.5 | 16.2 | 16.3 | 16.0 | 16.9 | 17.5 | 17.4 | 17.8 | 18.3 | 17.3 | 16.3 |
| 1922 | 17.3 | 15.8 | 14.4 | 14.5 | 14.5 | 15.3 | 15.4 | 14.0 | 13.8 | 13.2 | 12.1 | 11.6 | 14.3 |
| 1923 | 11.2 | 11.8 | 11.6 | 11.7 | 12.0 | 12.3 | 12.8 | 12.4 | 12.3 | 11.7 | 11.3 | 11.1 | 11.9 |
| 1924 | 11.7 | 12.0 | 12.4 | 12.8 | 13.4 | 13.3 | 11.5 | 10.4 | 10.1 | 9.7 | 9.7 | 9.0 | 11.3 |
| 1925 | 8.7 | 8.8 | 9.5 | 10.8 | 10.9 | 10.5 | 11.0 | 10.5 | 10.8 | 11.8 | 11.8 | 12.1 | 10.6 |
| 1926 | 13.0 | 13.6 | 14.3 | 15.3 | 15.6 | 15.6 | 15.3 | 13.5 | 13.4 | 13.1 | 13.4 | 13.4 | 14.4 |
| 1927 | 13.6 | 14.0 | 14.1 | 14.4 | 13.5 | 11.1 | 10.9 | 10.6 | 10.5 | 11.1 | 12.0 | 11.8 | 12.2 |
| 1928 | 11.9 | 11.8 | 11.2 | 11.0 | 10.4 | 10.6 | 11.1 | 11.9 | 12.7 | 13.2 | 13.9 | 13.4 | 12.0 |
| 1929 | 13.3 | 12.8 | 13.0 | 14.0 | 14.7 | 14.9 | 13.7 | 12.5 | 12.1 | 11.9 | 12.2 | 11.8 | 13.3 |
| 1930 | 12.4 | 13.0 | 13.6 | 14.1 | 13.1 | 12.3 | 12.1 | 10.9 | 11.0 | 11.7 | 12.6 | 12.1 | 12.3 |
| 1931 | 13.2 | 13.3 | 14.2 | 14.8 | 14.7 | 15.5 | 16.0 | 17.4 | 19.1 | 20.1 | 18.1 | 18.1 | 16.2 |
| 1932 | 17.6 | 17.3 | 17.6 | 17.7 | 17.7 | 17.6 | 18.3 | 18.2 | 19.1 | 20.2 | 20.5 | 19.5 | 18.6 |
| 1933 | 19.7 | 19.6 | 17.9 | 15.1 | 12.4 | 11.6 | 8.9 | 9.3 | 9.5 | 10.6 | 9.6 | 9.4 | 11.7 |
| 1934 | 10.0 | 10.4 | 10.6 | 10.9 | 11.0 | 9.9 | 9.8 | 8.2 | 8.5 | 7.9 | 7.9 | 7.3 | 9.2 |
| 1935 | 7.7 | 8.3 | 9.1 | 9.7 | 9.9 | 10.4 | 9.7 | 10.0 | 11.1 | 11.7 | 13.9 | 14.3 | 10.3 |
| 1936 | 14.6 | 14.6 | 14.2 | 14.6 | 14.1 | 13.9 | 10.7 | 8.2 | 8.0 | 7.8 | 7.5 | 6.9 | 10.8 |
| 1937 | 7.0 | 6.9 | 7.3 | 7.1 | 6.9 | 7.3 | 7.6 | 9.6 | 10.7 | 14.4 | 15.6 | 15.1 | 9.1 |
| 1938 | 14.6 | 14.0 | 14.3 | 14.7 | 14.8 | 14.8 | 14.2 | 14.9 | 15.1 | 15.4 | 15.5 | 14.8 | 15.0 |
| 1939 | 14.3 | 14.5 | 14.8 | 14.3 | 13.0 | 12.8 | 13.6 | 13.7 | 11.8 | 11.9 | 11.3 | 10.2 | 13.0 |
| 1940 | 10.1 | 10.2 | 10.6 | 10.4 | 10.6 | 10.9 | 11.6 | 11.5 | 11.8 | 11.6 | 11.4 | 11.5 | 11.2 |
| 1941 | 11.9 | 12.3 | 12.4 | 12.7 | 12.6 | 12.3 | 12.3 | 11.7 | 11.1 | 11.4 | 11.1 | 10.7 | 11.9 |
| 1942 | 10.8 | 10.6 | 10.8 | 11.1 | | | | | | | | | |

* Number of pounds of feed equal in value to 1 pound of live chicken at local markets.

## Characteristics of Egg-Feed Ratios

The same mixture of feeds is used in computing the feed-poultry product price ratios as in the past. This ration is composed of 62 per cent corn, 14 per cent wheat, 8 per cent oats, 2 per cent barley, 9 per cent bran, and 5 per cent tankage, by weight. The prices used are mid-month prices received by farmers for corn, wheat, oats, and barley, and prices paid by farmers for bran and tankage. Poultry product prices used are the mid-month average prices received by farmers.

The feed ration is not necessarily recommended for poultry producers and, in fact, may not be used as such anywhere in the United States. But since the constituents compose a very large percentage of all rations and price changes of all feeds are more or less uniform, the price changes of that mixture are significant. Rations used in present-day poultry feeding operations are flexible, of course, and include many additional ingredients. The Bureau of Agricultural Economics is now collecting monthly data on prices paid by farmers for ready-mixed poultry feeds. In the near future these may also enter into the computation of poultry product-feed price ratios.

The annual averages given in the accompanying tables are simple averages of monthly data for the egg-feed and chicken-feed price ratios. For turkeys, annual ratios were computed between the weighted average price received by farmers for turkeys in the months October through

**Turkey-feed price ratio, 1929-42***

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Av.** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1929 | 17.3 | | | | | | | | | 15.1 | 16.3 | 14.5 | 14.4 |
| 1930 | 14.9 | | | | | | | | | 14.1 | 15.7 | 15.8 | 13.8 |
| 1931 | 18.2 | | | | | | | | | 24.9 | 23.0 | 25.3 | 22.0 |
| 1932 | 23.9 | | | | | | | | | 24.9 | 26.2 | 23.0 | 20.7 |
| 1933 | 21.6 | 20.8 | 19.7 | 15.8 | 12.9 | 11.9 | | | 10.7 | 12.8 | 12.9 | 12.1 | 11.9 |
| 1934 | 12.4 | 12.3 | 12.1 | 12.0 | 11.3 | 9.8 | 9.1 | 7.9 | 7.9 | 8.5 | 9.9 | 10.0 | 10.6 |
| 1935 | 9.9 | 10.0 | 10.1 | 9.8 | 9.6 | 9.5 | 9.4 | 9.3 | 10.4 | 11.9 | 17.3 | 19.1 | 14.9 |
| 1936 | 17.5 | 16.2 | 15.3 | 14.8 | 13.8 | 13.1 | 10.2 | 8.4 | 8.5 | 8.9 | 8.5 | 7.9 | 8.5 |
| 1937 | 7.3 | 7.1 | 7.2 | 6.7 | 6.6 | 6.7 | 6.9 | 8.1 | 9.2 | 13.7 | 16.5 | 16.5 | 11.8 |
| 1938 | 15.3 | 15.5 | 15.5 | 15.4 | 15.1 | 14.7 | 14.9 | 15.8 | 16.9 | 18.7 | 19.4 | 20.0 | 18.8 |
| 1939 | 18.6 | 17.9 | 18.2 | 16.8 | 14.6 | 14.0 | 14.3 | 15.1 | 13.3 | 14.3 | 14.6 | 13.7 | 14.5 |
| 1940 | 12.0 | 11.7 | 11.3 | 10.8 | 10.3 | 10.6 | 11.0 | 11.5 | 12.3 | 12.8 | 13.5 | 14.1 | 13.3 |
| 1941 | 13.5 | 13.3 | 13.1 | 12.5 | 11.9 | 11.6 | 11.5 | 11.6 | 11.9 | 13.4 | 14.5 | 14.2 | 14.5 |
| 1942 | 13.0 | 12.2 | 12.0 | 11.9 | | | | | | | | | |

* Number of pounds of feed equal in value to 1 pound of live turkey at local markets.

** Ratio between weighted average price received by farmers for turkeys in months October-January and average price of feed during the growing period weighted as follows: May, 2; June, 6; July, 11; August, 15; September, 19; October, 23; and November, 24.

January and the weighted average price of feed used during the growing season (May to November). The annual ratio for turkeys is more logically constructed than monthly ratios, since the latter, during the growing season, expresses the relationship between prices paid for feed in the growing season and prices received for breeder hens that were produced the year before.

### Egg-Feed Ratio Most Important

The egg-feed price relationship is more important than the chicken-feed price relationship in causing changes in the production of chickens on farms in the United States. The relative favorableness of the chicken-feed price relationship, however, is of some importance in causing changes in types of chickens raised for egg production.

During the past year, for example, the egg-feed price ratio has been relatively much more favorable than the chicken-feed price ratio and the demand for light breed chicks has been exceptionally strong this spring. Changes in the chicken-feed price relationship, of course, affect the production of commercial broilers. Because of the less favorable relationship between broiler prices and feed prices during the past several months the production of commercial broilers in some areas has declined moderately.

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## *Eggs Speed Healing*

According to the Poultry Farmer, eggs are now used in healing battle scars. This Australian poultry magazine quotes the Sunday Sun as follows.

"Burnt faces and flayed bodies can now be 'made over' in a few weeks instead of months.

"Mr. Fisher, a Danish research worker, had a hunch that the speedy growth of a chick in an egg must be due to some chemical urge which—could it be extracted—would speed regrowth in human wounds.

" 'Good idea, but can't be done,' said critics. 'These speed-substances are destroyed by extraction.' Fisher refused to be beaten. He experimented with live eggs for years and in 1939 found a way to extract the delicate growth chemical unharmed

"He sopped it up with china-clay, which was gently dried, and then finely powdered. Results—epicutan. Sprinkle it on any small piece of human tissue and the latter will start growing at the speed of a chick in an egg."

—Nulaid News, April, 1942.

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# Eggs for Health, Morale, and Victory

By L. C. NORRIS and E. I. ROBERTSON

Cornell University

*Reprinted from Feedstuffs*

THE poultry industry of the United States has been advanced into the front line of our war effort. Eggs have become one of the major items in the production of food for victory. The role of nutrition in maintaining the health and morale of the nation and of its armed forces in war-time has emphasized the important part that eggs play in building adequate diets.

In the production of eggs, poultrymen have a responsibility equal to that of other producers of war materials. By responding to the need for more eggs, they will make a great contribution toward increasing the food supply of the nation. This contribution does not represent merely the production of more food, but the production of food which has special properties for improving the quality of the diet.

Eggs have long been recognized as one of nature's perfect foods. As such, they have been recommended by nutritionists and physicians for young and old, in sickness and in health. The fact that a fertile egg, supplied with suitable environmental conditions, develops into a husky, vigorous chick is in itself proof of the food value in the egg.

In recent years, science has provided us with a great deal of information regarding the amount of the various nutritive essentials required by humans, and also much information concerning the dietary properties of the various foods, including

**TABLE 1—Food Value of Eggs**

| Constituent— | Amounts in ½ pt. milk | Amounts in Two eggs | % of daily requirement supplied by two eggs |
|---|---|---|---|
| Calories | 161 | 158 | 5.3 |
| Protein, gm. | 8.2 | 12.8 | 18.3 |
| Carbohydrate, gm. | 11.5 | 0.7 | (1) |
| Fat, gm. | 9.1 | 11.5 | (1) |
| Calcium, mg. | 276.1 | 58.0 | 7.3 |
| Phosphorus, mg. | 217.6 | 224.0 | 16.4 |
| Iron, mg. | 0.05 | 3.1 | 25.8 |
| Vitamin A, U.S.P. | 375–525 | 1,000–2,000 | 30.0 |
| Vitamin B, mg. | 95–150 | 140– 160 | 8.3 |
| Vitamin C, mg. | 4.9– 5.1 | ........... | ... |
| Vitamin D, U.S.P. | ..... | 10– 50 | (2) |
| Vitamin G, mg. | 456–562 | 280– 420 | 13.0 |

(1) Used chiefly to supply calories.
(2) Adult human requirement not determined.

The Miller Publishing Co., Minneapolis, Minn.
(Feedstuffs, May 2, 1942)

eggs, which we habitually eat. In Table 1, a comparison is made between the food value of eggs and that of milk, another one of nature's perfect foods. Comparison is made on the basis of equivalent energy, or caloric value. Two eggs are roughly equal to one-half pint of milk in this respect. Eggs, it will be observed, are particularly valuable as sources of iron and vitamin A. Two eggs a day will provide approximately one-quarter of the total amount of these nutritive essentials required by an adult.

Valuable contributions to the diet are also made by the other nutritive essentials contained in eggs. When combined with milk and other natural foodstuffs of which a good varied diet is composed, eggs contribute an important part in making that diet an adequate one.

### Increased Egg Production Urged

Realizing that eggs are a necessary part of the war-time food program, the Secretary of Agriculture in May, 1941, requested the poultry industry to increase egg production by 5 per cent. The industry responded with a total production in 1941 of 3,700,000,000 dozen eggs. In September, 1941, the 1942 egg production goal was set as 4,000,000,000 dozen eggs, but this was increased after the Pearl Harbor attack to 4,200,000,000 dozen eggs, 13 per cent increase over the 1941 production.

In the minds of some, there may be a question as to whether it is necessary to increase egg production to this extent. These people raise doubts as to the future of the poultry industry after the war, if egg production is given too much stimulation during it. That, however, is a question which must be left for the future to answer. The job before the poultry industry at the present time is to do its part in winning the war. If we do not win the war, the independent way of life of the farmer will be lost along with the other freedoms. Instead of thinking of the effects of over-production after the war, the poultry industry should consider the dangers of under-production of eggs and other food supplies during war-time.

### Price Support Guaranteed

In order to encourage egg production, the government established a minimum price for eggs by guaranteeing to support prices at 85 per cent of parity. Recently, the Secretary of Agriculture announced that the support of egg prices would continue until July, 1943. In compliance with this program and to meet lease-lend and other needs, the government, between March 15, 1941, and December 31, 1941, purchased approximately 47,000,000 dozen shell eggs, 66,000,000 pounds of frozen eggs and 44,500,000 pounds of dried eggs. During January and February of this year, the government purchased approximately 10,000,000 dozen eggs. These purchases by the government, together with the rise in the general price level, caused an increase in the price of eggs beginning in April, 1941, and continuing until December. As is evident from the data presented in Table 2, the price of farm eggs from April, 1941, until March, 1942, exceeded 85 per cent of parity except during October and November.

**TABLE 2—U. S. Farm Egg Price**

| | Price per dozen | 85% of parity |
|---|---|---|
| 1941—January | 19.7 | 22.4 |
| February | 16.8 | 20.6 |
| March | 16.4 | 19.3 |
| April | 19.7 | 19.3 |
| May | 20.1 | 19.3 |
| June | 23.2 | 19.0 |
| July | 25.6 | 21.8 |
| August | 26.8 | 24.1 |
| September | 30.3 | 28.6 |
| October | 31.8 | 32.7 |
| November | 35.5 | 36.8 |
| December | 34.1 | 32.6 |
| 1942—January | 31.3 | 25.3 |
| February | 27.5 | 23.6 |

### Egg Prices and Feed Prices

The higher price of eggs resulted in a very favorable egg feed ratio. In December, 1941, egg prices declined somewhat and have continued to decline since that time. The decline, however, is largely seasonal. Feed prices, on the other hand, have risen still further, with the result that the egg feed ratio is no longer as favorable as it was most of the latter part of 1941. It is still, however, better than it was a year ago at this time.

The rapid increase in feed prices accompanied by declining egg prices has aroused anxiety in the minds of some poultrymen regarding future prospects for egg production. Poultrymen, however, have assurance that the egg feed ratio will not become too unfavorable, since the government has obligated itself to support egg prices at 85 per cent of parity until July, 1943. In arriving at the parity price of eggs, the feed which farmers buy is considered, as well as the purchases of other material. Under these conditions, it is impossible for the price of feed to make any important advance without at the same time having an upward influence upon the price of eggs.

### Attainment of 1942 Goal

The statistics of the poultry industry for January and February make it appear highly probable that the egg production goal for 1942 will be attained. These statistics are summarized in Table 3. They show that the number of layers on farms for the first two months of this year is approximately 37,000,000 greater than for the same period in 1941, an increase of about 11 per cent. The layers on farms this year are also

**TABLE 3—Layers on Farms and Egg Production, January-February Period**

| | Jan.-Feb. period 1941 | 1942 | % increase |
|---|---|---|---|
| Average number layers on farms (millions) | 328 | 365 | 11 |
| Number of eggs produced (millions) | 6,239 | 7,207 | 16 |
| Eggs per 100 layers (numbers) | 1,906 | 1,975 | 3 |

producing slightly better than last year. The slightly increased egg production may be the effect of better stock, but it is more probably due to the effects of better care and better feeding. The increase in the number of layers on poultry farms, when weighted for a slightly increased egg production, gives a value which is approximately equivalent to the increase in egg production required to meet the 1942 goal.

### Feed Supplies Ample

The feed supplies required to meet this increased egg production, and also the increased production of other animal products, are ample for this year. There is a strong possibility, however, that feed supplies will be less ample during 1943, owing to the vagaries of weather and the present restriction on corn acreage. Only in two years out of the last 22 has there been such favorable feed production as in 1941. An average crop in 1942 would result in the reduction of food reserves to a dangerous point and a short crop would result in the liquidation of livestock and in the rationing of livestock products in this country, if the needs of our armed forces and of our allies are to be met. It is impossible, of course, to insure against low yields of feed crops. However, it is possible for the nation to insure itself in part against the low production which usually accompanies low yield by increasing the acreage of feed crops.

The 1942 goal for corn acreage was increased after the Pearl Harbor attack to approximately 108 per cent of last year, and that of barley to approximately 106 per cent, while oat acreage was left the same and wheat acreage was decreased. Soybean and peanut acreage was greatly increased, in order to meet the fat shortage. Prospects in 1943 for high protein feeds, therefore, are excellent, but for safety it would appear advisable either to increase corn acreage still further or temporarily to remove all restrictions in order to provide full assurance against a poor crop year. The need for a greatly increased production of soybeans may have, however, a restraining influence upon the removal of corn acreage restrictions.

### Problems of Feed Manufacturers

The manufacturers of poultry feed also have an important part to play in the production of a sufficient quantity of eggs to meet the 1942 goal. In order to play this part successfully, feed manufacturers have some problems which must be solved. One of these is the problem of the scarcity of meat scrap and fish meal, as made evident by the present high prices of these products. The prices of these products rose so rapidly during the latter part of 1941 that ceilings were placed upon them, effective January 20, 1942. The price of meat scrap rose more rapidly than that of fish meal. The rate of advance is indicated by the data presented in Table 4. The February price index of meat scraps based on the 1910-14 average was 145, as compared with 137 for the standard poultry ration used by the Cornell Department of Agricultural Economics in calculating the cost of feeding chickens, and with 105 for eggs. On March 26, the ceilings on meat scrap were reduced $5 per ton, thus improving their levels in relation to other feed prices and to the price of eggs.

**TABLE 4—Price Changes in Meat Scrap**

| | 50-55% meat scrap | |
|---|---|---|
| | Price per ton (1) | Index (2) |
| 1941—January | $39.80 | 77 |
| February | 41.80 | 80 |
| March | 45.80 | 87 |
| April | 49.80 | 95 |
| May | 51.80 | 99 |
| June | 51.80 | 99 |
| July | 61.80 | 118 |
| August | 65.80 | 126 |
| September | 68.80 | 130 |
| October | 67.80 | 127 |
| November | 65.80 | 123 |
| December | 68.80 | 128 |
| 1942—January | 73.80 | 142 |
| February | 75.80 | 145 |

(1) Wholesale price in straight cars at Utica, N. Y.

(2) Price index in comparison with 1910-14 price at 100.

Owing to the scarcity of meat scrap and fish meal, it may be necessary to substitute other products in poultry rations in order to relieve the situation. The best product available for this purpose is soybean oil meal. At present, the cost of protein in this product relative to that of meat scrap is favorable, and will probably continue to be so, in view of the effort being made to increase soybean production. The cost of a point of protein in soybean oil meal at Buffalo, New York, is now $1.16, as compared with $1.44 for a point of meat scrap protein. Feed manufacturers who are already using rather liberal quantities of soybean oil meal in their poultry feeds may hesitate, however, to use larger quantities until further experimental evidence is made available. Agricultural experiment stations have here an important problem which needs immediate solution.

The problem is not one of quality of proteins, since soybean oil meal, when appropriately heat treated, is at least as good as that of meat scrap, if not superior to it. This conclusion is based upon excellent experimental evidence. By giving special attention to vitamin supplementation, particularly supplementation with components of the vitamin B complex present in meat scrap, but not present in soybean oil meal, it is probable that the difficulties involved in using larger quantities of soybean oil meal in poultry rations may be quickly overcome. At least one experiment station is already working on the problem and some results may be available before the end of the year.

### Vitamin A and D Situation

The problems resulting from the effect of the war on the supplies of vitamin D for use in poultry rations appear to have been taken care of satisfactorily. In spite of the fact that nearly all importations of cod liver oil and a great deal of the tuna livers, from which tuna liver oil is obtained, have been cut off because of the war, there appears to be a sufficient quantity of vitamin D being produced within the United States at the present time to take care of current needs. That this situation was not a serious one is due to the results of research work conducted several years ago, which showed that 7-dehydro-cholesterol, an animal sterol, when irradiated with ultraviolet light, develops vitamin D potency equal, rat unit for rat unit, to the potency of the vitamin D of cod liver oil when assayed with chicks.

### Must Adjust Formulas

On the other hand, the shutting off of importations of cod liver oil, together with the need for conserving vitamin A from fish liver oils for use in the human dietary, both in this country and in England, has produced a situation that might be somewhat difficult for feed manufacturers to meet without considerable adjustment of formulas. Amendments to the original Limitation Order L-40 of the War Production Board, however, allow an increased amount of vitamin A from fish oils from the limits first announced, as far as poultry breeding mashes and turkey starting and growing feeds are concerned. These amendments, which were announced April 10, were considered essential by feed men and feeders, in order to avoid a period this spring during which the vitamin A content of feeds would have been marginal. With the amendments, the order prohibits manufacture of feeds containing more than 1,000 units of vitamin A derived from fish liver or fish oils per pound, except that chicken, turkey and duck breeding feeds, and turkey starting and growing feeds are permitted to contain 2,000 units of vitamin A per pound. Also, the amendments provide for the unrestricted use in feeds of vitamin A oils blended prior to February 10.

In the long run, it is probable that the order will not have any serious effect upon the poultry industry, as it is highly probable that the present high price of dehydrated alfalfa meal will encourage a much greater production during the coming season, provided, of course, the weather is favorable.

### Encourage More Meal

Feed manufacturers can perform a service for themselves and for the poultry industry by calling the attention of the producers of dehydrated alfalfa meal to the need of a greater production of high grade alfalfa meal during the war. Whenever possible, the present dehydrating equipment should be used to capacity during the coming alfalfa growing season.

Furthermore greater attention

the result that there has been a growing production of dried whey in this country. This production has been greatly accelerated during the past two or three years. It appears now that there is enough dried whey being produced to largely take the place of the dried skim milk which has been diverted to human use.

### Substitutes Now Available

The fermentation and distillation industries likewise became interested in the development of vitamin G carriers, and sizable quantities, produced from by-products obtained in the manufacture of ethyl-alcohol, butyl-alcohol, distilled liquors and beer, are available for use at the present time. When used in place of a part of the milk by-products in

changes in the poultry industry. Cooperative action is required by feed manufacturers, feed dealers, poultry specialists and poultrymen in order to obtain complete adjustment to the changes. Many of the agricultural experiment stations have reorganized their research projects to give emphasis to immediate problems. State and county extension workers must use methods other than county-wide meetings for presenting information. Travel restrictions and labor scarcity on the farms do not permit attendance at meetings as in the past; yet the need for poultrymen to keep informed is more urgent than ever.

Feed dealers and their representatives are continually being called

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Feed manufacturers can perform a service for themselves and for the poultry industry by calling the attention of the producers of dehydrated alfalfa meal to the need of a greater production of high grade alfalfa meal during the war. Whenever possible, the present dehydrating equipment should be used to capacity during the coming alfalfa growing season.

Furthermore, greater attention should be given to the preservation of the vitamin A content of the meal.

### Vitamin G Situation

Poultry feed manufacturers also face problems resulting from the diversion of dried skim milk, used chiefly as a source of vitamin G in poultry feeds, to use in the human dietary. A year ago at this time, approximately 30 per cent of the total production of dried skim milk was used in animal feeding. At present, only about 10 per cent of the total production is available for this purpose. Fortunately, about 10 years ago it was found that dried whey could be used in place of dried skim milk in poultry rations, with the result that there has been a growing production of dried whey in this country. This production has been greatly accelerated during the past two or three years. It appears now that there is enough dried whey being produced to largely take the place of the dried skim milk which has been diverted to human use.

### Substitutes Now Available

The fermentation and distillation industries likewise became interested in the development of vitamin G carriers, and sizable quantities, produced from by-products obtained in the manufacture of ethyl-alcohol, butyl-alcohol, distilled liquors and beer, are available for use at the present time. When used in place of a part of the milk by-products in poultry mash mixtures, they give excellent results. In order to produce a sufficient quantity of high quality mash mixtures for rearing chicks and for feeding breeders it may be necessary to encourage a greater production of dried whey and of these by-products. At present, the situation appears to be moderately tight, but strenuous efforts are being made to increase the production of these products. A year from now it is quite possible, therefore, that the effect of the diversion of dried skim milk to human use upon the poultry feed industry may have disappeared.

### Need for Co-operative Action

The war has brought about many changes in the poultry industry. Co-operative action is required by feed manufacturers, feed dealers, poultry specialists and poultrymen in order to obtain complete adjustment to the changes. Many of the agricultural experiment stations have reorganized their research projects to give emphasis to immediate problems. State and county extension workers must use methods other than county-wide meetings for presenting information. Travel restrictions and labor scarcity on the farms do not permit attendance at meetings as in the past; yet the need for poultrymen to keep informed is more urgent than ever.

Feed dealers and their representatives are continually being called upon to supply information on poultry nutrition problems. These people who are in frequent contact with the poultrymen have an excellent opportunity to contribute their knowledge and experience to help poultrymen secure greater egg production at the lowest possible cost.

To poultrymen themselves, perhaps, has come the need for greatest adjustment. They must feed rations which frequently contain substitute products in order to secure greater egg production, and, at the same time, secure it with less labor. It may be necessary to purchase feed in bulk in the near future as there is an acute shortage of feed bags due to the cutting off of the imports of jute and burlap. Empty sacks should be preserved from damage by rats and weather and returned to the feed dealer with every purchase of feed. Poultrymen in areas that import feeds, particularly the East, should store as much feed on the farm as possible to insure against transportation difficulties. The release of 100,000,000 bus of wheat from the ever-normal granary by the Surplus Commodity Corporation furnishes an excellent opportunity for farm storage of feed.

## Feed for Production

All poultry feeds are used for one purpose—production. In young birds sold for meat, the production is in the increased weight of the carcass. The production of laying flocks is in the form of eggs. Many flocks have egg-producing ability that is never realized. While the layers have production bred into them, it is frequently never obtained because of mismanagement, disease, or improper feeding. During war-time, when the poultry industry should be geared to the highest state of efficiency, there is no place for the poorly managed flock.

Most of the feed consumed by birds is for the maintenance of their bodies, and these requirements must be met before any of the feed can be used for egg production. After the maintenance needs are satisfied, added increments of feed will yield added increments of production within the limits set by heredity and environment. Since there is no occasion for merely maintaining laying hens, full feeding at all times is indicated. The greatest feed efficiency is obtained when the layers are fed for high production. The approximate amount of feed required for maintenance is shown in Table 5.

The skill of the poultryman is often indicated by his ability to get his birds to consume large quantities of feed. Since the birds prefer grain, special devices must be used to encourage mash consumption. Greater feed consumption and consequently greater egg production, can be secured by feeding fresh mash daily. In order to keep the mash fresh, many poultrymen allow the mash hoppers to become empty every day or two, but not to remain empty. Frequent stirring of the feed will cause the birds to take renewed interest in it. Feeding wet mash or pellets will induce greater mash consumption. Open hoppers, placed perpendicular to the windows in order to obtain good light distribution, will induce greater consumption of feed than the storage type of feeders.

**TABLE 5 — Approximate Amount of Feed Per 100 Birds Daily**

| | Leghorns | Heavy Breeds |
|---|---|---|
| Maintenance ............ | 18 | 22 |
| 10% production ......... | 20 | 23 |
| 20% production ......... | 21 | 24 |
| 30% production ......... | 22 | 25 |
| 40% production ......... | 23 | 26 |
| 50% production ......... | 24 | 27 |
| 60% production ......... | 25 | 28 |

## Feeding Space and Production

The amount of feeding space influences production. Inadequate space does not permit the timid birds to obtain enough feed; too much space allows the feed to become stale before it is eaten. Under average conditions, 24 feet of feeding space is about optimum for 100 birds. Greater production will be obtained from the general purpose breeds if the mash hoppers are not more than 18 inches from the floor.

The use of lights to supply a 13-hour day during the winter will increase feed consumption and egg production. There does not appear to be any advantage in supplying more than 13 hours of light each day. Artificial light affects the seasonal production more than the total production of eggs. However, one egg in the fall is often as profitable as two eggs in the spring.

## Efficient Use of Labor

Poultrymen are paid for their accomplishments and not for the hours they work. Less man power is now available on poultry farms due to inductions into military service and to attractive wages in industry. With this situation creating an acute labor shortage, poultrymen can well afford to consider short cuts in the labor required in caring for their flocks.

Providing running water in the poultry house may reduce the labor required as much as 50 per cent. Adequate space for unloading and storing feed to reduce rehandling to a minimum will also conserve time and labor. Platforms for unloading the feed should be at the same height as the feed truck. Labor is used efficiently in multi-deck poultry houses when the feed is taken to the top floor with elevators and is fed through chutes to the lower floors.

The labor involved in keeping hen houses clean may be reduced by allowing the litter to build up to a depth of six to ten inches in the fall before cold weather arrives. This provides good insulation for the floor and, with a good ventilation system, will help to keep the house dry all winter.

Keeping eggs clean will save hours in cleaning them and results in better quality as well. They can be kept clean by frequent replacement of nesting material and prevention of water spillage around the fountains. Chores such as egg cleaning add up to a lot of unpleasant work during the year.

Most studies that have been conducted indicate that labor efficiency is related to the size of the poultry flock. In commercial flocks, where the major part of the income is from poultry, it may be necessary to keep 1,000 or more birds to provide a satisfactory income. But most farms keep smaller flocks, and the optimum size unit is 200-300 birds in one group. More than this number in a group may require less labor per bird, but egg production may be reduced and danger from disease and vices will be increased. On many farms, the poultry flock can be increased to one or more units with little increase in the labor requirements. Many of the flockowners do not realize the possibilities for reducing the cost of egg production in this way.

### Maintaining Healthy Flocks

Poultrymen should obtain their chicks from flocks where a satisfactory pullorum-control program is followed. Chicks affected with pullorum are a risk in brooding because of high mortality and the pullets may not lay as well as pullorum-free birds. It is more important than ever to raise healthy flocks and take every precaution to prevent disease that will limit the producing ability of the flock.

### Breed Out Leucosis

Research has shown that the complex of poultry diseases, described as paralysis, big liver, iritis and tumor, and now known collectively as fowl leucosis, is influenced by breeding. Certain birds have a resistance that can be transmitted to their progeny, while other families of birds in the same flocks are more susceptible. Poultry breeders can contribute a great deal to the future success of the purchasers of their chicks by eliminating the more susceptible families. This can be done by removing from the breeding flock those birds that are affected with iritis, and breeding only from hens which have survived one laying year or longer. Great progress can also be made in reducing leucosis by progeny testing.

Leucosis, however, cannot be controlled entirely by breeding. Much can be done by brooding the chicks isolated from adult stock. Young chicks are more susceptible to leucosis than mature birds. Pullets that have been grown to maturity without being exposed to leucosis can be housed with infected birds with little leucosis resulting.

Disease causes a tremendous loss in the poultry industry. This loss is due, only in part, to the birds in the flock that die; it is also due to the lowered production of the survivors. In controlling disease, emphasis should be placed on maintaining poultry health — preventing disease rather than controlling it after it appears. Crowding, lack of sanitation, improper feeding, and allowing contamination to accumulate will weaken the resistance of the flock.

Poultry pastures or good ranges will reduce the feed cost and improve health in growing pullets. Dairymen have found that the pasture is their cheapest source of nutrients; the same may apply to poultrymen in rearing flock replacements. For best results, the grass or legumes must be kept young and tender to furnish the greatest amount of digestible nutrients and vitamins. Pastures that are mowed frequently not only produce more edible green feed, but encourage more complete use of the area. Tall grass discourages foraging by growing pullets. Frequent moving of the feeders prevents contamination of the soil around them and is a good method of getting better utilization of the pasture. Benefits that may be expected from pullets reared on a good range are lowered feed costs, less mortality from disease and more vigorous birds.

The important place of the poultry industry in the war effort has been pointed out many times. It is evident that the industry fully realizes this and, through co-operation of poultrymen, feed dealers, feed manufacturers and others, is making the needed response. Barring unforseen difficulties over which the industry has no control, it will see to it that there are plenty of eggs to assist in maintaining an adequate diet for the people of the United Nations and their armed forces and, thereby, do its part in bringing victory.

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TWO HUNDRED employees of the Henderson Produce Company, Laclede, Mo., have formed the Chicken Pickers' Union, Local 287, an affiliate of the A. F. & L. Members of the union didn't like the way things were being run in the town of 642 population, so they formed the Chicken Pickers' Party and put their men up for office. Every candidate of the new party won.

—Poultry Supply Dealer, May, 1942.

AN experiment conducted by Miss Edna Higbee of the University of Pittsburgh showed that weak solutions of colchicine injected into chicken eggs produced chicks with oversized combs and roosters with elongated tail feathers.

—Journal of the American Veterinary Medical Association, April, 1942.

# WAR AND THE POULTRY RAISER

### Army Saves Egg Cases

There is increasing evidence that the Army is doing a better job of caring for egg cases. Bids are being issued with specifications listing cases containing flats and fillers, where previously shells alone were all that was left when the cases got back to the salvage officer. Although conditions are still bad in some areas, conservation of containers is becoming the rule rather than the exception in well-established camps.

### Egg Case Ceiling Violated

To date, no prosecutions for egg case price ceilings have been made and cases continue to sell at from 5 to 10 cents over the ceiling.

### Use of Trucks Regulated

Office of Defense Transportation orders originally scheduled to go into effect on June 1 but recently postponed until July 1, may interfere with the delivery of feed and eggs, unless they are modified. Common carriers, contract haulers, and private over-the-road haulers (affected by Orders No. 3, 4, and 5, respectively) will be required to have a 100 per cent-of-capacity load (either maximum load for tires on weight basis, or maximum load of body on space basis) going in one direction and 75 per cent the other.

Egg haulers who cannot pick up a return load of cases will be forced to find some other freight, for they can't return until they're loaded—unless they're common carriers, and can show evidence of having hunted for a load. Private haulers cannot carry freight for others, so may have to lease their trucks to common carriers.

Local haulers (those operating within 15 miles of town limits) are required by ODT order No. 6 to eliminate call-backs, special deliveries, etc., and also to cut mileage by 25 per cent.

In postponing the effective date on orders No. 4, 5, and 6, the ODT specifically requested that industries use the extra time to work out methods of complying with the orders. That poultry organizations are not without opportunities for trucking economies is evidenced by a report just released on a study made in Connecticut. It was found that five egg marketing associations could reduce the mileage traveled in collecting eggs from 15,770 to 3,230, and the gathering cost from an average of 19 cents to 11 cents per case. The economies would be made by using trucks of 200 case capacity and by consolidating routes.

Although no change has been made by the auctions in question, the study shows what could be done, and it is probable that similar savings in mileage could be made by nearly every poultry group. Tire and gasoline conservation demand that such economies be made, even if they aren't all forced by ODT regulations.

### Purchase Coal Now

A carload of coal purchased now may make room for a carload of feed next fall. Transportation authorities are encouraging the purchase of coal this summer, since everything possible must be done to relieve the expected demand on transportation agencies during the peak fall and winter months.

Poultrymen should order coal now for brooders, homes, auction buildings, and all other places where coal is burned. If and when local coal stocks are depleted, those who were cautioned to put in coal but didn't may go cold. War goods have priority on railroads, trucks, and boats.

### Grain Shipments Limited by Government

By order of the Office of Defense Transportation which went into effect on May 15, no more grain can be shipped over the Great Lakes by boat without a permit. Some 340 grain carrying boats will be used to carry iron ore needed to keep defense industries busy.

Boats not readily converted for ore transportation will continue to haul grain under permit. These, with promised assistance from the railroads, should preclude any possibility of a grain shortage. Storage holdings of grain in the East are at an all-time high, and it is likely that any transportation difficulties will be between the mill and the farm, rather than from producing area to mill. A month's supply of feedstuffs on the farm should constitute adequate insurance against any shortage.

### Most Feeds Covered by Price Regulations

Feedstuffs controlled by the OPA's General Maximum Price Regulation, as specifically named in an interpretation issued on May 23, include wheat bran, wheat standard middlings, malt sprouts, wheat flour middlings, wheat red dog, wheat mixed feed, brown, gray and white wheat shorts, alfalfa meals, dried beet pulp, oat millfeed, distillers' dried grains, cottonseed meal, citrus pulp, corn gluten feed, corn gluten meal, soybean oil meal, coconut meal, brewers' dried grains, molasses, and most other commodities used for feeding purposes.

Feedstuffs excluded from the price ceiling include hay, wheat, corn, oats, barley, rye, buckwheat, soybeans, grain sorghums, rice, and all other grains and seeds, whole grains and seeds processed expressly for use as feeds, such as cracked, ground or crushed grains, linseed oil cake and meal, and mixed feeds.

### Farm Labor Shortage

The shortage of farm labor is becoming more pronounced, especially where a lot of help is needed for harvesting highly perishable crops. In New York City thousands of high school students have applied for farm jobs, and some schools there are giving farm courses. Steps have also been taken to recruit a women's land army. In New Jersey, the Farm Security Administration has established migrant farm labor camps.

Since the care of poultry requires somewhat more ability than can be supplied by the extra labor recruited for harvesting of vegetables and fruit, poultrymen may have to train women for certain types of work with poultry as has been the practice in England for a long time. Our Army is growing at a rapid rate, so even less help will be available by mid-summer.

The labor shortage has also hit cooperative marketing organizations. The Vineland Egg Auction usually opens its membership rolls in the summer, but will not do so this year because of the inability to handle any greater volume of eggs. It has also considered the possibility of drafting members for part time work at the auction to handle the present volume.

The Wooster (Ohio) Cooperative Poultry Association encouraged its members to bring their eggs in on days of the week when the work is usually light. Additional roller conveyors have been purchased to reduce handling as much as possible. Women and 18 year old boys have been hired to replace some of the workers who have gone into the armed forces.

### Lumber Stocks Frozen

Farmers wishing to purchase lumber suitable for most farm construction during the 60 days following May 13 will have to depend on lumber dealers' present stocks, since the WPB has frozen mill stocks for all except military purposes. Some small mills will be able to continue sales, and, under certain conditions, lumber producers may obtain authorization from the Division of Industry Operations, WPB, to deliver construction lumber to retailers.

### Dried Egg Purchases

The Federal Surplus Commodities Corporation on May 1 reported unfilled contracts for 76,700,430 pounds of dried eggs to be delivered in specified months during the remainder of 1942.

Purchases of dried eggs will reach 200,000,000 pounds in 1942, enough to take care of the increase in egg production over last year, the government has indicated.

The government is still seeking offers for dried eggs to be delivered before the end of the year.

### Shortage of Cans for Frozen Eggs

A growing shortage of cans in which to put eggs which have been broken out for freezing appears to be interfering with maximum operation of the breaking plants. Much of the dried product bought by the government has been prepared from frozen eggs. The can shortage is making it necessary to hold more eggs in the shell for future drying.

## *Travel by Incubator*

Up-and-coming FFA'ers from Monmouth, Maine, can well set the pace for other FFA groups, for their activities are not only varied but also lucrative. Starting from scratch four years ago with a 500-egg incubator, this active chapter, under the supervision of Donald A. Piper, last year earned $258 with a 5000-egg incubator and a 3000-egg machine, together with other cooperative activities.

These wide-awake boys keep their ears to the ground, and their fingers on the latest information. Last July, they traveled to the National Camp in Virginia, and in September visited the Eastern States Exposition.

Last fall, six of the group went to Kansas City; and two of them held offices in the state association. For the past three years, members of the group have entered the state prize-speaking contests. Needless to say, they came off with their share of the honors. For the past two years, they have had a state-winning poultry team . . . the same that copped honors at the Eastern States Exposition last fall. This year, along with their incubators, they are remodeling a building to be used as a brooder house.

Just goes to show what a wide-awake group of young Americans can do. Who says our boys are soft?

—Eastern States Cooperator, May, 1942.

BUSINESS records of 1840 reveal that 24 dozen eggs were exchanged for one pound of tea, and in 1865 one gallon of kerosene was exchanged for 14 dozen eggs.
—Lorraine L. Engel, U. S. Egg and Poultry Magazine, April, 1942.

# Production and Consumption of Eggs, Chickens, and Turkeys, 1909-41

*Condensed from the Poultry and Egg Situation*

ESTIMATES of total and per capita consumption of poultry and eggs for the period 1909-41 are presented in the accompanying tables. These estimates for calendar years are constructed from available data on production, imports, exports, non-food uses, and stocks at the beginning and the end of each year.

## Production

Total production of eggs consists of the estimated farm output plus 10 per cent of such production to allow for the non-farm egg production.

The estimated total output of chicken in the United States is based on the estimated quantity produced and consumed on farms and the quantity sold from farms, with a 10 per cent addition to these two items to allow for non-farm production. Total output in recent years also includes the estimated production of commercial broilers. The total quantity was converted to dressed weight by assuming that blood and feather loss averages 12 per cent. Data on storage holdings include total stocks of poultry less ducks and turkeys, when such classes were reported separately.

The annual output of turkeys includes the quantity sold from farms and the quantity consumed on farms. Dressed weight is determined by assuming that the blood and feather loss amounts to about 9 per cent of the live weight.

## Consumption

In estimating the consumption of poultry products, no attempt was made to estimate variations in waste. Since there probably is less waste by consumers in a period of depression than in a period of general prosperity, the variations between periods in total and per capita consumption of poultry products may not be as great as indicated by the estimates. Another source of error lies in the method of allowing for the quantities produced by people other than farmers. In spite of these and other possibilities of error, however, the estimates probably are accurate enough to indicate significant variations in the consumption of poultry products.

United States foreign trade in poultry products has been relatively unimportant and the quantity of poultry and eggs utilized annually in this country has been about equivalent to the quantity produced.

Production of poultry products responds more readily to changes in demand and other factors than most other livestock enterprises. Changes in demand therefore are largely responsible for the fluctuations in the level of per capita consumption. This is particularly true for eggs. In some instances, of course, the influence of other factors predominates. During the World War, for example, a strong demand for all foods prevailed, but as a result of the unfavorable relationship between feed prices and egg prices and the limited supplies of feed available, the total output of chickens and eggs did not expand.

The largest annual per capita consumption of eggs occurred in the late 1920s. As a result of the decline in demand in the early 1930s and the shortage of feeds, in the middle of that decade, per capita consump-

**Production and Consumption, Eggs, Chickens, and Turkey, in United States, 1909-41.**

| Year | Eggs | | | Chickens | | | Turkeys | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total Production | Consumption | | Total Production | Consumption | | Total Production | Consumption | |
| | | Total | Per Capita | | Total | Per Capita | | Total | Per Capita |
| | Millions | Millions | Eggs | Million Pounds | Million Pounds | Pounds | Million Pounds | Million Pounds | Pounds |
| 1909 | 27,830 | 26,496 | 292 | 1,774 | 1,774 | 19.5 | | | |
| 1910 | 29,700 | 28,329 | 307 | 1,904 | 1,905 | 20.6 | | | |
| 1911 | 32,340 | 30,900 | 329 | 1,955 | 1,956 | 20.9 | | | |
| 1912 | 31,130 | 29,637 | 311 | 1,896 | 1,897 | 19.9 | | | |
| 1913 | 30,910 | 29,483 | 303 | 1,885 | 1,886 | 19.4 | | | |
| 1914 | 30,690 | 29,268 | 295 | 1,907 | 1,911 | 19.3 | | | |
| 1915 | 32,890 | 31,456 | 313 | 1,928 | 1,931 | 19.2 | | | |
| 1916 | 31,680 | 30,506 | 299 | 1,878 | 1,851 | 18.1 | | | |
| 1917 | 30,470 | 29,095 | 281 | 1,857 | 1,828 | 17.7 | | | |
| 1918 | 30,800 | 29,707 | 284 | 1,896 | 1,857 | 17.8 | | | |
| 1919 | 33,550 | 31,850 | 303 | 1,976 | 1,996 | 19.0 | | | |
| 1920 | 32,670 | 31,886 | 299 | 1,932 | 1,945 | 18.2 | | | |
| 1921 | 33,880 | 32,520 | 299 | 1,952 | 1,935 | 17.8 | | | |
| 1922 | 36,300 | 34,773 | 315 | 2,076 | 2,079 | 18.9 | | | |
| 1923 | 38,500 | 36,554 | 326 | 2,172 | 2,177 | 19.4 | | | |
| 1924 | 38,051 | 37,001 | 324 | 2,226 | 2,190 | 19.2 | | | |
| 1925 | 38,466 | 36,842 | 318 | 2,280 | 2,292 | 19.8 | | | |
| 1926 | 40,973 | 39,749 | 338 | 2,341 | 2,316 | 19.7 | | | |
| 1927 | 42,490 | 40,715 | 342 | 2,474 | 2,501 | 21.0 | | | |
| 1928 | 42,525 | 40,753 | 338 | 2,417 | 2,429 | 20.1 | | | |
| 1929 | 41,713 | 40,721 | 334 | 2,442 | 2,414 | 19.8 | 213 | 213 | 1.8 |
| 1930 | 42,974 | 40,787 | 331 | 2,626 | 2,656 | 21.6 | 216 | 222 | 1.8 |
| 1931 | 42,385 | 41,271 | 333 | 2,426 | 2,418 | 19.5 | 214 | 214 | 1.7 |
| 1932 | 39,928 | 39,095 | 313 | 2,465 | 2,478 | 19.8 | 264 | 260 | 2.1 |
| 1933 | 39,065 | 37,253 | 297 | 2,572 | 2,560 | 20.4 | 298 | 297 | 2.4 |
| 1934 | 37,872 | 36,469 | 289 | 2,392 | 2,384 | 18.8 | 284 | 281 | 2.2 |
| 1935 | 36,970 | 35,571 | 280 | 2,297 | 2,319 | 18.2 | 267 | 269 | 2.1 |
| 1936 | 37,987 | 36,968 | 289 | 2,507 | 2,447 | 19.1 | 361 | 344 | 2.7 |
| 1937 | 41,320 | 39,679 | 308 | 2,383 | 2,442 | 19.0 | 346 | 355 | 2.8 |
| 1938 | 41,092 | 40,294 | 310 | 2,319 | 2,301 | 17.7 | 355 | 358 | 2.8 |
| 1939 | 42,727 | 40,978 | 313 | 2,546 | 2,545 | 19.4 | 422 | 393 | 3.00 |
| 1940 | 43,544 | 42,037 | 319 | 2,520 | 2,489 | 18.9 | 482 | 474 | 3.59 |
| 1941 | 45,943 | 42,052 | 316 | 2,722 | 2,701 | 20.3 | 474 | 485 | 3.64 |

U. S. Department of Agriculture, Bureau of Agricultural Economics
(The Poultry and Egg Situation, April, 1942)

tion of eggs then declined to the lowest level since the World War. In recent years, supplies of feed have been more abundant, demand has strengthened, and egg production has increased considerably.

Very heavy lend-lease requirements can be met this year without reducing per capita consumption in this country below the average for the last few years. Stronger domestic demand will be reflected this year in higher prices rather than in further increases in per capita consumption.

Per capita consumption of chicken has fluctuated less during the last 3 decades than the per capita consumption of eggs. The largest average quantity consumed per person was in 1930, when supplies of chicken came largely from flocks raised primarily for producing eggs. In recent years, especially since 1935, production of commercial broilers has increased considerably. With the additional output on general farms, domestic supplies of chicken in 1942 (total and per capita) will be the largest on record. The importance of chicken in the meat portion of the average American's menu is indicated in the comparison of quantities consumed per capita.

Turkey production in the United States has increased considerably since 1929 as a result of the general adoption of highly specialized production methods. Per capita consumption has been increasing for several years and will establish a new record high this year.

**Per Capita Consumption of Meats, United States, Specified Periods (Dressed Weight).**

| Item | 1910-14 | 1920-24 | 1930-34 | 1941 |
|---|---|---|---|---|
| | | Pounds | | |
| Beef | 66.1 | 58.7 | 50.3 | 63.1 |
| Veal | 6.7 | 8.0 | 7.0 | 7.6 |
| Lamb and mutton | 7.2 | 5.4 | 6.8 | 7.0 |
| Pork (excluding lard) | 66.3 | 68.7 | 68.0 | 70.4 |
| Total (above) | 146.3 | 140.9 | 132.1 | 148.1 |
| Chicken | 20.0 | 18.7 | 20.0 | 20.3 |
| Turkey | — | — | 2.0 | 3.6 |
| Total | 166.3 | 159.6 | 154.1 | 172.0 |

◄◄ BOSS of the range on a poultry farm managed by A. G. Lohman in Michigan is a chesty gamecock. The cock was bought by Lohman in a last-ditch effort to stop fighting among cockerels on range. Not only has the gamecock conquered all the Leghorn cockerels that picked fights with him, but he breaks up any fights that start. Now the young cockerels won't even eat from a hopper while the gamecock is there, and at night the champion sleeps in his own range shelter, all alone, says Capper's Farmer, May, 1942.

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# POULTRY RESEARCH

## Sulphur for Coccidiosis

Sulphur for prevention of cecal coccidiosis was subjected to further studies by Dr. C. A. Herrick and his co-workers at the University of Wisconsin. (American Journal of Veterinary Research, Vol. 3, No. 6).

Phenothiazine proved to be of no value, but two of numerous other organic sulphur compounds tested held out considerable promise as a preventive when given in single doses. This work has not yet reached the stage where the use of these compounds can be recommended under practical conditions.

—Carl H. Schroeder, Everybodys Poultry Magazine, June, 1942.

## Iodine for Fowl Paralysis

Iodine treatment for fowl paralysis, is now claimed to hold promise as a curative measure against fowl paralysis, including leucosis. E. Gray, of the Essex Agricultural Institute at Chelmsford, England, states in the English Veterinary Journal (quoted by Veterinary Medicine, Vol. 37, No. 1) that injections with 10 per cent aqueous solutions of potassium iodide effected a recovery of apparently incurable cases. It would seem well to underscore the word apparently. Iodine gained some temporary acclaim as a remedy a few years ago. Things which are too good to be true, usually are too good to be true.

—Carl H. Schroeder, Everybodys Poultry Magazine, June, 1942.

## Paratyphoid in Ducks

An outbreak of paratyphoid, associated with Salmonella typhimurim, which caused the death of 400 out of 500 week-old wood ducks, is reported in the Journal of the American Veterinary Medical Association for March, 1942, by Norman D. Levine and Robert Graham of the University of Illinois.

The eggs were gathered from wild birds by the use of nesting boxes, were hatched in a new incubator, and ducklings were brooded in thoroughly sanitary quarters.

## Treatment of Swine Erysipelas in Turkeys with Turkey Serum

Treatment of turkeys showing symptoms of erysipelas with a serum obtained from an affected bird was successful, report J. E. Lindenmayer and C. M. Hamilton of Western Washington Experiment Station in the Journal of the American Veterinary Medical Association, March, 1942.

The serum was obtained from the sick turkey, stored in a refrigerator for four days, and treated with formalin sufficient to make a 0.5 per cent concentration in the serum. Although the results were encouraging, the sample was small, and further tests will have to be made before definite conclusions may be drawn. There are indications, however, that an anti-erysipelas serum of turkey origin might be of more value in treating infected turkeys than one of swine origin.

### Sunlight Prevents Perosis

When chicks get direct sunlight and a recommended low-phosphorous ration, they are unlikely to show slipped tendons, even if they are not fed extra manganese, report J. G. Halpin, W. W. Cravens, and C. E. Holmes in "What's New in Farm Science," Wisconsin Agricultural Experiment Station Bulletin 455.

Rations high in phosphorous (those which contain much steamed bonemeal) should have ¼ pound of manganese sulphate added to each ton of mash, when chicks are to get direct sunlight. If chicks do not have access to sunlight, double the manganese.

### Soybean Oil Meal and Bloodtesting Reactions

Bloodtesting for pullorum disease is sometimes rendered difficult by so-called fine agglutination reactions which interfere with the reading of the blood samples. It has been suggested that high levels of soybean meal in the mash might be responsible for this phenomenon.

At the Kansas Experiment Station, tests were made on birds which received a commercial ration plus 20 per cent soybean oil meal. It was found that the soybean oil meal had no effect upon the agglutination reaction.

It has also been reported that by the use of fowl typhoid bacterin the fine agglutination reactions could be eliminated. Actual tests showed that such practice increased rather than decreased the problem. These observations were made by Drs. L. D. Bushnell and W. J. Twiehaus (10th Biennial Report of the Kansas Experiment Station).

—Carl H. Schroeder, Everybodys Poultry Magazine, June, 1942.

### Oatmeal or Wheat Products Needed to Stop Cannibalism

Either bran and middlings, rolled oats, or feeding oat meal are necessary in a ration to prevent cannibalism, reports J. G. Halpin in "What's New in Farm Science," Wisconsin Agricultural Experiment Station Bulletin 455.

Even though rations carried sufficient salt, alfalfa leaf meal, dried milk, meat scrap, fish meal, and soybean oil meal, when yellow corn was the only grain, cannibalism resulted, says the investigator.

### Tapeworm Removal by Periods of Starvation

Starvation of fowl infected with the tapeworm Raillietina cesticillus for 24 to 48 hours gave results similar to those claimed for certain worm treatments which prescribe a starvation period before medication. The head of the worm is not affected by long periods of starvation (up to 20 days), and new bodies are rapidly grown when food is restored, reports W. M. Reid of Monmouth College and the Kansas State College of Agriculture in Poultry Science (Vol. 21, No. 9).

It is concluded that treatment of tapeworm-infected chickens to remove only the body of the worm cannot be recommended, since regeneration is too rapid and the benefits of such treatment are short-lived.

### Carotene and Riboflavin in Alfalfa Meals

Dehydrated alfalfa meals were found to contain more carotene and riboflavin than sun-cured meals, and leaf meals to contain more carotene and riboflavin that regular meals, in tests carried on at the Kansas Agricultural Experiment Station by A. R. Hanke and A. T. Perkins, according to their report in Poultry Science (Vol. 21, No. 3).

There is more variation in riboflavin content than in carotene content. The correlation between riboflavin and carotene content ranges from a non-significant relationship between sun-cured meals to a highly significant relationship in dehydrated meals, especially those in the hands of manufacturers.

### Alfalfa Leaf Meal Better than Dried Cereal Grass

From the standpoint of improving hatchability, alfalfa leaf meal is better than the same amount of dried cereal grass, report W. W. Cravens and J. G. Halpin in "What's New in Farm Science," Wisconsin Agricultural Experiment Station Bulletin 455.

Tests have shown that it is neither vitamin K, riboflavin, nor extra manganese that makes alfalfa leaf meal superior to dried cereal grass. Just what the factor is has not been determined.

### Manganese Sulphate and Vitamin Stability

When manganese sulphate was added to commercial feed at the rate of 4 ounces per ton, and added in a premix of minerals, no measurable loss of vitamin D occurred, report M. Wayne Miller, V. Joukovsky, and Norman Hokenstad of the Washington Cooperative Egg and Poultry Association's research department in Poultry Science (Vol. 21, No. 3).

Manganese sulphate acts as a drying agent on cod liver oil, and the drying action destroys vitamins A and D when the oil is mixed in a bran, cod liver oil, and manganese mixture in which the oil represents 9 per cent of the mixture and the manganese sulphate 0.5 per cent of the mixture.

### Substitute Protein Supplements

A practical protein combination is one made of equal parts of soybean oil meal, meat scraps, and fish meal, report J. G. Halpin and W. W. Cravens, University of Wisconsin poultrymen, in "What's New in Farm Science," Agricultural Experiment Station Wisconsin Bulletin 455.

To make a cheaper mash, use two parts of soybean oil meal to one part each of fish meal and meat scraps, and for chicks, use 2 per cent of dried milk in place of an equal amount of other protein feeds, they suggest.

### Calcium in the Laying Hen

Hens go into a negative calcium balance during the period following the onset of laying, even though supplied with ample calcium in the diet, and calcium is removed from the skeletal structure, but later in the period of production calcium lost is regained without cessation of laying, report C. L. Morgan, J. H. Mitchell, R. C. Ringrose, and E. J. Lease of the South Carolina Agricultural Experiment Station in Poultry Science (Vol. 21, No. 3).

### Artificial Insemination of Hens Proves Satisfactory

Satisfactory fertility results when hens are inseminated once a week with a mixture of 0.04 cc. of semen and 0.04 cc. of modified Ringer's-glucose solution at a pH of 7.45 or 7.4, report J. G. Halpin, C. E. Holmes, W. W. Cravens, Paul Phillips, and Henry Lardy in "What's New in Farm Science," Wisconsin Agricultural Experiment Station Bulletin 455.

Cock semen diluted in the manner described can be stored for some time without losing its motility. When the yolk-buffer solution used in preserving bull semen was tried, however, sperm in cock semen was injured.

### Gizzard Lesions in Day-Old Chicks

More than 99 per cent of 28,458 chicks examined showed hemorrhages that precede gizzard erosions, report David Miller and Harry W. Titus of the U. S. Bureau of Animal Industry in Poultry Science (Vol. 21, No. 3). Of 84 different substances fed to the parent stock and 124 substances injected into eggs during the incubation period, none had any effect on the incidence or severity of the gizzard lesions in day-old chicks.

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# Washed Eggs Will Keep

**By E. M. FUNK**
University of Missouri

*Transcript of a Talk*

IT is safe to estimate that about 25 million cases of soiled shell eggs are actually produced every year and go into market channels. Now, no one eats the shells. They are thrown away, and the interior quality of a very high percentage of these eggs is fine. But we do not believe these eggs should reach the retail stores and be offered to consumers in that condition.

The question is, what are you going to do with them? It is true the breakers have taken large quantities of these eggs. But it is also true that the amount of contamination in frozen and dried eggs could be reduced by about half if the eggs were properly cleaned before they were broken.

### Better Management on Farms

Some folks say better management practices on the farm can eliminate dirty eggs from market channels. That is not the case. We studied the factors which influence the production of these eggs, and we found that, even with the best management, a minimum of at least 10 per cent will be soiled. That means we cannot hope to reduce the number of dirty eggs, by management alone, to less than about 10 million cases per year.

At the University of Missouri, where we became interested in the dirty egg problem a number of years ago when we attempted to put on some quality egg programs, we tried washing eggs because that seemed the more practical way to attack the problem. We set out to find a way to do the job that would not impair the keeping quality of the eggs.

### Many Eggs Cleaned

A lot of eggs are being cleaned now, one way or another. And they will be cleaned just as long as there are price differentials in favor of clean eggs. The question is, who should do the cleaning? We don't think the job should be done on the farm. We think the eggs should be washed in the plant by those who know how to do the job and have the equipment to do it properly. If you can clean eggs so they will keep from 98 per cent to 99 per cent as well as naturally clean eggs when placed in storage, it seems to me you have solved the problem.

We don't take any credit for what has been done along these

Presented at the Institute of American Poultry Industries Fact Finding Conference, Kansas City, Mo., Jan. 22, 1942.
Reprinted from U. S. Egg and Poultry Magazine, April, 1942.

lines, nor do we accept any responsibility for what has happened in the industry as a result of washing eggs.

### Making the Solution

We started to work on this problem at Missouri in 1936 and we have cleaned eggs every season since. We tried several different solutions in the beginning, but we finally came to a 1 per cent sodium hydroxide solution, using concentrated lye—one pound of lye to 100 pounds of water.

We thought the best test we could apply to these cleaned eggs was to store them for six to eight months in a refrigerator warehouse, candle them at the end of the storage period, and break out any questionable eggs to see how they came through.

Incidentally, the eggs we used in our experiments were not produced on the University poultry farm. We took them out of the regular packing channels, buying them from various Missouri packers.

### Results of Tests

Here are some results of tests we have made on washed eggs. The average loss on the clean eggs, which were used as control lots and were stored from six to eight months, was .8 per cent, or three eggs per case. These controls were usually April eggs, but in some cases they were May eggs.

The average loss on the dirty eggs which were stored (these were sound-shelled eggs which were dry on the surface) was 1.6 per cent. That, of course, is contrary to accepted notions.

As another type of control, we washed eggs with ordinary tap water to see what would happen. The loss ranged all the way from 1.8 per cent to 32 per cent. You can see you will get into lots of trouble if you wash eggs with ordinary tap water.

When we used the 1 per cent lye water solution, we got an average loss of 1.7 per cent, or about six eggs per case, for all the years we have been making these experiments. These were the dirtiest eggs we could buy, but they had the interior quality of good refrigerator eggs. A loss of six eggs per case on that type of egg is certainly not a heavy loss.

### Controlling Water Temperature

After we had made these tests for several years, we observed that, for some reason or other, the losses were much greater some years than others. Checking back, the only difference we would recall was in the temperature of the water. So we set up an experiment in 1940 in which we controlled the temperature of the eggs and the temperature of the water.

We washed eggs with water at various temperatures, repeating this performance each week for six weeks. These are the losses: On eggs washed with water alone at a temperature of 40° F., the average loss was 24 per cent; with water at 60°, the loss was 11 per cent; with water at 100°, the loss was 5.5 per cent; with water at 120°, the loss was 1.3 per cent, or five eggs per case. The loss on the controls (clean eggs stored at the same time) was only .2 per cent.

### Average Loss 2½ Eggs per Case

When we combined high temperature water with a 1 per cent sodium hydroxide solution this past season, repeating it four times, these are the losses we got: Case No. 1—by candling, no loss; by breaking the second and third grade eggs which were found by candling, still no loss. Case No. 2—by candling, no loss; by breaking second and third grade eggs, one egg. Case No. 3—by candling, four eggs; by breaking second and third grade eggs, three eggs. Case No. 4—by candling, two eggs; by breaking the second and third grades, no loss. The average by candling, then, was one and a half eggs per case; by breaking, one egg per case; total, two and a half eggs per case.

We don't know yet what the final results of this experiment will be. But we do know from our experiments that when we use the 1 per cent lye water solution to which some Bon Ami powder has been added, this combination at high temperatures (120°) gives us a quick and very effective cleaning job and a fine natural finish.

The figures I have been able to gather by talking to various men and the experience I have had washing eggs make me think that if I had to make a living storing eggs, I'd rather buy dirty eggs and clean them myself and store them than buy the eggs coming into Chicago that were apparently clean. I'm reasonably sure my loss would be less.

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A HEN owned by L. H. Kelts, Tulsa, Okla., recently established an enviable egg-laying record, says the Southwest Poultryman for June, 1942. The two-year-old Buff Orpington laid nine consecutive eggs which ranged in weight from 6½ ounces to 8 ounces, and measured from 9 by 7⅜ inches to 9½ by 7½ inches.

After laying each of the eggs, the hen fainted and had to be revived by Kelts. The nine eggs were laid over a period extending from February 18 to April 2, but the percentage production was better than it appears, for inside each of the monster eggs (which contained yolk and white) was another egg, complete with shell, yolk, and white.

THE first passengers to ascend in a balloon (and that was in 1783) were a rooster, a duck, and a sheep—and they all got down safely, although no inquiring reporter recorded that the passengers enjoyed this distinction.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, May, 1942.

# Diary of a Poultryman

By PERCY S. WHITE

Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**June 2**—Looking at the feed bill totals this morning, I could tell with just a casual glance that I was brooding chicks. Neither did it take very much deduction to realize that the young chicks are most hearty eaters. And it is only the beginning; the worst is yet to come. This year there will be no broilers to sell, at least not many. Ordinarily, I have about half the young stock to sell, but it doesn't work that way when only sexed pullets are raised.

**June 3**—One of the best pullets, always is, was burked in front of the No. 2 house some time during the forenoon. I don't mind losing one now and then, in fact I rather expect it, but I don't like this burking business. It is bad enough to know the cause of the demise, but it is the great unknown that I fear.

**June 4** — I am selling a coop of market hens tomorrow. I have worn them out; they are worn to a frazzle. An enterprising producer told me the other day that when layers fell down to 70 per cent production, they were sold. I am not so particular, preferring to get the remaining 70 per cent eggs and then sell what is left of the bird.

**June 6** — The return load was empty egg cases. Ralph Treat says they are getting harder to get every day. The dealer's price is going to advance 1½ cents the next time Ralph orders and he will have to order again in the near future.

**June 7**—It's the same old story—carrying eggs in the pockets and lighting tin can oil burning brooder stoves while they are hot. Both lead to disaster eventually, only a question of time. My time came today with the stove. I have been carrying a low flame, and today the draft drew it out. The lesson I should have learned a couple of years ago, when my whiskers, mustache, eyebrows, and lashes were singed to a fare-ye-well, was forgotten. I reviewed that lesson today when No. 5 stove exploded in my face. He who said, "What fools we mortals be," surely had a keen insight into human nature.

**June 9**—Ralph Howman is plowing one of the fields with his tractor. We are going to drill it in soybeans on a cahoots proposition. I think the young stock is going to share in the cahoots, too, for the brooder houses run almost the entire length of one side of the field.

Everybodys Poultry Magazine Publishing Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, June, 1942)

**June 10** — There are always odds and ends to take care of on a chicken ranch and there is no question about it. But, by and large, we are right up with the work. Donnie will be home through the vacation and we should be able to get many of those jobs-we-just-haven't-been-able-to-get - to - yet done.

**June 12** — Still selling a few old running gear hens on the auction. This time I also had a coop of old roosters on the sale. The hatching season is drawing to a close and so is their career. Ralph Treat says that the demand for old cock birds is limited, but the supply seems to be unlimited. The trouble is that some of the large hatcheries are closing down and are unloading cock birds in one grand lump sum.

**June 13**—Guess it is a good thing I didn't sell any more male birds yesterday. Walter Buss phoned out this morning for me to start saving hatching eggs again. I was as surprised as I think Walter was to get the order. Some enterprising chicken man evidently is going to brood some late-hatched stock. This chicken business is getting down to a fine point in this enlightened age.

**June 14**—Another week's work is done, a rather creditable week, to say the least. The truck patch has been given the once over with the little tractor and the potatoes sprayed. All the grass has been mowed. Even the grass and weeds among the plantings along the boulevard to the woods have been cut.

**June 16**—The hay field on the Fike farm looks like it will make a big crop. Harold is still scattering the droppings on it each week. It doesn't take an educated person to tell at a casual glance where the manure has been placed. The difference in color and length almost slaps one in the face. I always marvel at what chicken manure does for grass.

**June 17**—These egg inspectors always were a puzzle to me. Just let interior egg quality start to drop and those fellows go around with a worried look on their faces, weaving their heads from side to side. It seems that some of the producers have been turning their birds out on good June pasture. Naturally, the stock eat grass and this in turn colors the yolk a few shades darker. Harold Sidle says that he doesn't like it and that the producers are going to get less money for their product. Then the producers won't like that.

**June 20** — The old egg check, I need it every week. Sometimes it isn't as big as I think it ought to be, but it always comes in awful handy. If I could produce all the eggs I could possibly produce and then get paid for those additional I would like to produce, life would be sweeter still. Life is rather sweet, even if I am scared to death half the time for fear Old Coxy, pox, bronchitis, and all the other evils of chickendom will cut loose.

**June 21**—The garden sass is looking up and up, both in the west garden and the truck patch. We ought to eat potatoes this winter if nothing else.

**June 23**—This is the first opportunity in all these years that the summer work has been in such shape that time could be taken to work in the woods. We started today where we left off last winter. All sticks that are large enough to be salvaged for fire wood are being cut into furnace lengths. The nubbins that are left are thrown aside for incinerator fuel.

**June 26** — Two coops of market hens were sold today. I will get the returns tomorrow, although it won't be very much for the stock wasn't very much to start with, being mostly running gears. Some day I am going to surprise everybody and sell some real good birds and thereby probably cut off my nose to spoil my own face. As long as she is laying, says I, she had better be kept. Of course, I am in the egg business and not the production of meat. Anything that can be salvaged after a bird has been worn out is pure gravy.

**June 27** — It won't be long until the brooder stoves can be removed, oiled, and put away for another year. I am always a little dubious about removing them too soon for fear a rainy spell might set in for a few days. Wet chicks dry much quicker if a little heat is applied.

**June 28**—Blown-out stock seldom recuperates sufficiently to resume profitable production. I lose money on every blow-out; it is a losing game every way it is figured. The proper way to salvage a blow-out is to do the salvaging while salvaging is good. But I have got into the habit of giving the birds the benefits of the doubt. As a result, I eventually lose the bird.

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◄◄ SUNDAY eggs should be worth double the market price of eggs laid on week days, maintain members of the Carlton, Oregon, grange, who recently passed a resolution to that effect. Getting a sly dig at union labor, which insists on a 40-hour week, time and a half overtime pay, and double pay for Sunday, the poultry raisers advocated double prices for Sunday eggs, says the Associated Press report.

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# Poor Economy to Buy Sexed Pullets

By HERBERT HOGSETT
Pomona, California

*Reprinted from Nulaid News*

BECAUSE feed prices are higher than usual, there has been a rather heavy move toward the purchase of pullet chicks in place of straight-run chicks. We have said before and will continue to say until someone convinces us otherwise with facts and figures, that the brooding of sexed pullet chicks is uneconomical.

We have heard the cry "I always lose money on the cockerels anyway and so why brood them?" so many times that we are getting tired of it. If you charge the original cost of the cockerels that you buy as straight-run chicks, then there are times when you will lose money on them. But if you do this then don't forget that your pullet has only cost you half what the sexed pullet would have cost you.

### What Records Show

We have been making a search of all the brooding cost records we have, and find that it takes about five pounds of feed for a leghorn to nine weeks of age. Even at $3.00 per 100 as the cost of feed this makes the feed cost only 15 cents per broiler. Add to this fuel cost of not more than 1 cent, miscellaneous cost (litter, interest on investment, and depreciation of equipment) of about 3 cents and you have a total outside cost (and not all cash, either) of 19 cents per broiler at nine weeks. You should have an average weight of 1¾ pounds on your broilers at that age. (We have a broiler man who consistently gets a 2 pound average on 1,500 cockerels at this age.) Now if your arithmetic serves you right you can see that it takes only 11 cents per pound for your broiler to return you what it has cost you outside of the original cost of the chick. At present prices (17 cents at the ranch) your pullet will be reduced in cost about 10 cents. It is our guess that broiler prices will be this amount or higher this season.

Further, a very high percentage of the chick sexing done in California is done by Japanese or Japanese-Americans. If you have been reading your newspapers lately you will know that there is a possibility of California being put under military law for the duration. This will probably mean that all persons of Japanese extraction will be removed from the coastal area and perhaps, from the state. This will mean only one thing—a large percentage of the

Poultry Producers of Central California, 840 Battery St., San Francisco, Calif.
(Nulaid News, March, 1942)

poultrymen who are expecting to brood pullet chicks will find it necessary to brood straight-run chicks. If they expect to raise the same number of pullets this season they must brood double the number of chicks.

### How to Feed

Our recommendation on brooding and feeding of broilers is as follows. For the first 3½ to 4 weeks, of course, they are fed and brooded with the pullets. It is possible to remove the broilers at this age to properly constructed batteries without heat. From here on they should be fed a good quality broiler mash. We like to feed a little whole grain in the evening. This should not be over 10 per cent of the total feed consumed. Remember, it is the protein in the mash that will finish your broiler to the best advantage in the shortest time. Above all do not add corn meal to your mash.

As we have stated in previous paragraphs, we know it pays to brood your cockerels even to the extent of investing money in the additional brooding equipment, construction of a means of finishing the broilers to a marketable size, and the time necessary to care for them.

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## *Bulk Handling Saves Money*

Horace Dryden thinks his bulk grain handling truck is the best labor and expense-saver devised on his poultry farm in a long while.

He invested a good deal of money in it, because he was experimenting, making it quite ornamental as well as useful, but any farmer might adapt the idea with simple materials and at low cost. At the present price and scarcity of sacks, it can quickly pay for itself.

The truck holds five tons of poultry feed it hauls from the feed mill, and the truck is driven to each poultry house, where the feed is run out into garbage pails. The garbage pail is a sanitary way of handling the feed, and the poultryman can carry the garbage can and distribute feed much easier and quicker than with sacks.

The driver manipulates a worm gear which makes it possible to get all the feed out of the truck.

The truck does away with the necessity of handling 100 sacks each trip. In Dryden's case, this is a big item, because he has to make about 75 trips to the mill each year to serve some 7,000 to 8,000 laying hens. And it is sanitary. There is no contamination of feed from old sacks. It fits into a ranch practice which has been remarkably free of disease troubles.

—Pacific Rural Press, May 2, 1942.

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# VIEWS OF THE EDITORS

### Ceilings and Prices

In the recent broad action of the Office of Price Administration in setting maximum prices at which many goods are sold, no action was taken in setting ceiling prices for eggs and chickens. In the case of eggs, a ceiling would be very awkward and necessarily subject to many alterations, for eggs are subject to seasonal influences, with a substantial difference in price between June and October. In the case of chickens, it would appear to be unlawful to set a ceiling at this time, for Congress has specified that a ceiling for any agricultural commodity cannot be set until that commodity reaches 110 per cent of parity, and the price of chickens is below that, or about 107 per cent.

The President has asked Congress to reduce the maximum prices of all agricultural products to 100 per cent of parity. If this recommendation of the Administration were followed, it would drop chicken prices about 1 cent a pound. There is small likelihood that the cost of living will be forced down in this way. For one reason, the so-called "parity" is absurd enough, for it is based on farm prices and farm conditions existing 30 years ago, instead of today. In that 5-year base period, 1910-14, the average price paid to producers in the U. S. for chickens, was 11½ cents a pound. In 1920, the price was 25½ cents; in 1926, it was 22 cents; and in 1929, it was approximately 22½ cents a pound, U. S. average. The "parity" formula, as far as the poultry industry is concerned, penalizes the producer, for the simple reason that during the base period, 1910-14, the price of chickens was low.

On April 15th, hog prices were reported as 123 per cent of parity, cattle prices as 131 per cent of parity, chicken prices 107 per cent of parity, and eggs 96 per cent. A 100 per cent parity ceiling on farm products, as recommended by President Roosevelt in his message to Congress, would require a reduction in the prices of the most important parts of the diet. That would strike a body blow at increased production. Already it is said that lard may have to be rationed by and by, even though hog growers are being stimulated to do their utmost by high prices. The cattle price situation is complicated by the need for leather, as Government requirements for shoes and leather equipment are expected to reduce the supply of shoes to civilians to as much as 50 million pairs below the 1932 level, when the standard of living was low.

Ceiling prices do not increase the goods available, as has been typically shown in the case of egg cases. The price of used cases is fair enough, but the difficulty is to get them. A variety of reasons has been given, such as ceiling prices taking away the incentive of collectors to gather them, west coast eggs being consumed at home and not moving in the same volume to eastern terminal markets, and middle west eggs moving to dryers within that production territory, with many of these eggs being held in cases for use as facilities permit.

Ceilings may often tend to reduce production, leading to a scarcity that necessitates rationing. The purpose of ceilings is to prevent inflation. The British system of strictly limiting farm prices helped to check inflation there, but as England's flocks went down, she had this country upon which to draw. We are the last line in food defense; and the easiest way to get goods is to go out and buy them at a price that brings them in.

—Frank L. Platt, American Poultry Journal, June, 1942.

## Increase Egg Car Loadings

Director Joseph B. Eastman of the Office of Defense Transportation has lately issued an order directing increased tonnage in car loadings in all categories of railroad freight transport throughout the country. Compliance with this urgent request may well be considered seriously by the nation's carlot egg shippers as a means of aiding in the vital objective of achieving maximum possible utilization of existing transportation facilities.

As far as the New York market is concerned, cars of eggs shipped in from midwestern points average at the present time about 400 cases each, some carrying the minimum of 380 and others slightly in excess of 400. Considering the practical elements of proper stowage, adequate bracing, and safety in transit, it would seem that the average number of egg cases might well be stepped up to 480 to 500 to the car, in the opinion of many egg dealers, without inflicting any undue hardships on any element in the distributive chain, especially during the season of heaviest production.

While it is true that some objections might be raised to increased loadings, we believe that they are wholly secondary to the vital war necessity of making more railroad cars and locomotives available for more essential purposes. We foresee the possibility that egg shippers may be required more adequately to care for their eggs to retain quality with a few days' extra holding in order to accumulate a sufficient number of cases for cars with increased tonnage. Also, the reshipment of heavier cars of eggs to other markets might cause some degree of temporary inconvenience to buyers who prefer minimum cars of 380 cases to those containing 480 or more. These and other minor considerations could readily be sacrificed to the all-out effort for existence in which the country is now engaged.

Most proposals for bids on eggs to be supplied to Army camps specify 400 cases to the car. However, one of the civilian buyers for the Army has pointed out that this was more to conform to trade practice than anything else, and that if the trade and egg shippers generally would adopt the practice of loading cars with 500 or 600 cases, the Army would prefer to buy eggs that way and the specifications would unquestionably be changed. This official expressed himself as in perfect accord with a change in trade practice that would increase the tonnage per car. He added that it would be much more convenient for the Army to handle shell egg cars with larger loadings just as it is now doing in the case of cars of poultry carrying 30,000 to 40,000 pounds and cars of butter running to 25,600 pounds instead of the former 18,900-pound volume.

For years, cars from the West Coast shipped to the eastern markets have contained 600 cases of eggs. During the past six months, many of these have been stepped up to 624 cases, which represents a considerable increase in the tonnage and the liberation of many cars. If every mid-western egg shipper should increase his loadings from an average of 400 cases up to 480 or 500, the aggregate release of railroad cars now used for egg transportation obviously would be tremendous.

Hardships might be felt here and there, but there would appear to be no doubt whatever that these could readily be overcome by gradual adjustment of trade practices in conformity. And there is certainly no question but that increased average egg case car tonnage, to the limits of safety in quality and condition maintenance during shipment, would provide an extremely valuable contribution to the war effort.

—American Egg and Poultry Review, May, 1942.

## Soldiers All

The President of the United States, in addressing the nation one night recently, made these statements:

"Never in the memory of man has there been a war in which the courage, the endurance and the loyalty of civilians played so vital a part."

". . . There is one front and one battle where everyone in the United States—every man, woman and child — is in action, and will be privileged to remain in action throughout this war. That front is right here at home, in our daily lives and in our daily tasks."

The importance of food to the conduct of a successful war cannot be overestimated. A high military officer is quoted as saying that if he had the choice of fighting a battle with food but no ammunition, or with ammunition but no food, he would choose the former. Well fed soldiers can always put up a fight, but starving soldiers cannot do it, even with guns and bullets.

The type of food that is most needed in the present emergency is that which results from feeding—eggs, milk, cheese, and meat. It is not exaggerating to say that upon those foods, and upon the feeds that go to make them, depends the outcome of this war and the future of our way of life.

Every feed man and every farmer is a soldier in this battle. Every feed man and every farmer has an important task assigned to him. We offer the prayer that there will be no shirking of duty, no failure to realize that the battle lines in this war extend to every farmyard, every factory, and every store.

—Feedstuffs, May 2, 1942.

## Price Fixing and the Farmer

A good many farmers are worried about partial price fixing which provides no ceiling for wages or profits.

In homely, human terms, here is the story of a poultryman. He has been working 16 hours a day, producing eggs for victory, and selling them at less than a parity price.

He lost two sons to unrestricted war wages. One son worked for a time at a feed mill for $35 a week. Then he got a government job at $12 a day. When the government job was finished the son was offered his old job back at the feed mill, but he demanded a raise to $45 a week. He does not want to come back to the farm—not enough money. The other son got a job as airplane mechanic.

At the feed mill, where most of the poultryman's money goes, the union used a new technique. Union leaders had promised not to strike during the duration. But they threatened to send their men to munitions jobs unless they got a raise, thus swinging as big a club as a strike. Indeed, it might be called a new kind of strike.

The poultryman is taking his daughter from school to help him. He wants to keep the eggs rolling for Uncle Sam. But he fears the price structure will soon be out of balance with feed mill labor going up.

There is no ceiling on egg prices. This poultryman wishes there were. He thinks there should be a ceiling on everything, impartially applied.

Many farmers are on a worse spot than this. A ceiling has been put on the retail price of their products, while wages continue to rise. Much of the labor which is left is inefficient.

These farmers are patriots. Are doing their part. They do not want to obstruct the efforts of government. But they share with Barney Baruch the feeling that to halt inflation, labor and profits must share price regulation along with commodities.

—Pacific Rural Press, May 30, 1942.

## More Records Broken

It is nothing short of remarkable the way poultry raisers have responded to the government's request for more eggs. Secretary of Agriculture Wickard asked for a 13 per cent increase. Actually, egg production during the first four months of this year has run 16 per cent ahead of the corresponding months of 1941.

Now, we hear that hatchings of chicks during the first four months of this year were 19 per cent above a year ago, and 1941 was a record breaker. Commercial hatcheries in March, 1942, put out more chicks than they had ever hatched before in one month, and then they came along and broke the record in April.

Young chickens on farms on May 1 showed an increase of 16 per cent above a year ago.

It will mean a lot more eggs in 1942. W. D. Termohlen, chief of the poultry unit of the Agricultural Marketing Administration, however, recently told a group of poultrymen that the government plans to buy 200 million pounds of dried eggs this year for lend-lease shipments to England, Russia, and other United Nations. This is equivalent to 20 million cases of shell eggs, and it should take care of any production in excess of 1941.

—Everybodys Poultry Magazine, June, 1942.

## War's Effect on the Poultryman

The poultry industry, like all others, is beginning to feel the weight of war times with its restrictions, regulations, and scarcities. The poultryman who expects that his business is going to run as smoothly as before the war is due for a sad awakening because his business, too, is going to have more or less rough going.

Today, egg cases, along with flats and fillers, are very scarce and high in price, and the future prospects are still more unfavorable. Transportation of feed to the farms and of eggs to the market is going to be more and more of a problem as the war progresses. Labor shortages, feed prices, and supplies of materials will all become more and more difficult.

We do not expect egg production will make any of us rich, neither that bonanza years of high egg prices of the last war will ever return. From all indications, all of us, whether in the army, in the factory, or on the farms, are going to work long and hard hours for what we are paid. The result will not be reward in money, but the accomplishment of one objective — the winning of the war—that will allow all of us to get back to our normal way of living.

—A. H. Pouse, New Jersey Farm and Garden, June, 1942.

## How to Save Time, Tires, and Gasoline

Old-timers will recall that before the days of the automobile and paved roads, when a trip to town was more or less an "event," they made a point of getting enough supplies on each trip to last them a good long while. They couldn't go back next day (or even next week) for something they had forgotten. If they did overlook some needed supply, they asked a neighbor to bring it out when he went to town. What they used to do 40 years ago, can be done again today.

I am not prepared to estimate how many hours of productive time can be saved in this way. It will depend on circumstances. But I do say that the idea is sound, and worthy of serious consideration. Here are a few possible ways and means:

1. For two or three or four neighbors to take turns in going to town for groceries, meat and feed, or to deliver eggs or other produce—instead of all going individually.
2. For one man with a rubber-tired tractor to haul a "train" of wagonloads of grain to the mill for grinding and mixing—a wagonload from each of three or four farms—instead of each man taking in his own stuff in his truck or trailer.
3. For two or three or four neighbors to order their baby chicks from the same hatchery or dealer, all to be delivered on the same day—so one man can bring them all home at one time, instead of each neighbor making a special trip.

I can't begin to list all the ways in which time might be saved by planning and cooperation, but these three suggestions may start a chain of thought that will suggest many more.

Somebody may come back and argue that trips to town are a form of recreation and, therefore, an aid to greater production, the same as two weeks' summer vacation to an editor. Taking a long view over a period of years, that's probably right. But this is war-time — a time when we have to think in terms of immediate results rather than long-time effects. A lot of us will have to get along with less recreation in 1942 than we have been accustomed to.

—Checkerboard News, April-May, 1942.

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A CALIFORNIA law requires that all dirty eggs offered for sale be marked "dirty" in letters of specified size. Unless so marked, they must be clean, reports J. E. Dougherty in Nulaid News, April, 1942.

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# Let's Have a Broiler Picnic

### By JOHN C. SCHOLES

*Reprinted from Everybodys Poultry Magazine*

IT won't be many weeks before picnic weather will be with us again. This year, why not have a broiler picnic? Poultry associations in some sections have served barbecued broilers at their annual outings, but it's an idea that is good for your local farm group, church organizations, and even your own family circle.

If you want to make a success of a broiler picnic, be sure to follow tested rules. The kind of fire, method of preparing the broilers, the sauce, and the way the broilers are cooked will determine whether or not the folks who participate in your broiler picnic will want to have another sometime.

### Use 2 to 2½ Pound Birds

Broilers weighing from 2 to 2½ pounds live weight are most satisfactory for outdoor cooking. If larger birds are used, there is some danger that the birds may be burned on the outside before they are cooked on the inside, particularly when large numbers of birds are being prepared.

The birds should be starved before killing. If they are not starved, there is danger of breaking the crop or lower intestinal tract when the birds are being split.

### Chill After Picking

Following picking, the birds should be chilled before any further dressing operations are conducted. For the dressing of broilers, a small pair of tin snips is very handy. The head is cut off and the legs are cut off just above the hock joints. The neck and back are removed by cutting through with the tin snips on either side, but close to the mid-line of the back. The entrails then may be scooped out very easily and the liver, gizzard, and heart separated. Before splitting the birds through the breast, the keel bone is removed from the inside. The skin and muscle down the mid-line of the breast is then cut, separating the bird into two halves.

Since the wing is likely to become charred on cooking, it is advisable to cut off the first joint of the wing. To prevent curling and charring of the second joint of the wing, it is advisable to cut through that joint with the shears.

The half-broilers are then dipped into the barbecue sauce, stacked in a covered kettle over night, and

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(Everybodys Poultry Magazine, April, 1942)

kept in a cool place until the time they are to be cooked. Any of the sauce which is left over after all of the birds have been dipped is poured over the birds in the kettle. The sauce which drains to the bottom of the kettle is used to baste the birds during the process of cooking.

### Charcoal Fire Best

The main requirements for the cooking of broilers are a hot fire, which is not flaming or smoking, and some means of holding the broilers close enough to the heat in order to cook them. It is also important to have a supply of the barbecue sauce to baste the birds from time to time. In general, a charcoal fire is most satisfactory for cooking broilers, although a wood fire which has burned to coals will serve the purpose very well.

The broilers are placed in double grills made of heavy wire commonly called steak broilers. The larger size grills have long handles and will hold six or more half-broilers. The use of this type of wire holder facilitates turning of the broilers.

It is not necessary to have a grate over the fire, but it becomes very tiresome holding the grill over the fire by hand. Wire grates about 12 inches by 15 inches, with collapsable legs, can be purchased. These may be set over a fire in a fireplace to serve as a rest on which to place the broilers.

An elaborate fireplace is not necessary. A fireplace open on one side and slightly larger than the grate may be built up of loose rocks or bricks to a height of not more than 9 or 10 inches.

For large picnics, a long narrow fireplace should be prepared, to give space for several grills. Two logs about 10 inches in diameter may be placed parallel about 15 inches apart and the fire built between them.

Plenty of the barbecue sauce should be used for basting and the birds should be turned in order to prevent burning. From 25 minutes to 30 minutes should be required to cook the broilers.

### Barbecue Sauce

The following is sufficient sauce for 10 broilers (20 half-broilers): one pint of oil — olive oil, Mazola (corn oil) or Wesson oil (cottonseed oil); juice of three lemons; one heaping teaspoon of salt; one teaspoon of pepper; one teaspoon of poultry seasoning.

This mixture should be beaten with a high-speed egg beater before dipping the birds.

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❝ DID you know that the average hen carries around 8,000 feathers? No, we didn't count 'em—wonder who did?
—Lorraine L. Engel, U. S. Egg and Poultry Magazine, April, 1942.

## POULTRY STATISTICS

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Atlantic area to 19 per cent in the South Central area.

The rate of lay in April—17.49 eggs per layer—was also a new record high and compares with 16.93 eggs a year earlier and with the previous record high of 17.46 eggs in April 1938. The April rate of lay was higher than last April in all sections of the country ranging from 1.8 per cent in the Western States to 5.0 per cent in the West North Central States.

The Government purchase program is still the important influence in the egg situation. Continuous buying has stimulated production, which in April was at a record high. The estimated increase over last year in total eggs produced was 17 per cent. The increase was greatest in the area which includes Minnesota, Iowa, Missouri, the Dakotas, Nebraska, and Kansas, where it amounted to 23 per cent. Reports on weekly receipts at Central Western packing plants, which revealed seasonal increases throughout the year to the early part of May, have shown a downward trend each successive week since then. Nevertheless, receipts at these country assembling points continue about 60 per cent greater than those of a year ago.

This year's seasonal production trend is not so clearly indicated by reports covering Pacific Coast packing plants, although for the most part these, too, show a tendency toward some reduction this month. As com-

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# POULTRY STATISTICS

## Receipts of Eggs and Poultry

There were 16 per cent more young chickens on farms May 1 this year than on May 1 a year ago. The increase was greatest in the West North Central States—24 per cent—and ranged on down as follows: South Atlantic and South Central areas, 15 per cent; East North Central States, 12 per cent; Western States, 10 per cent; North Atlantic States, 2 per cent.

A record number of 5,992,000,000 eggs was laid in April. Egg production was 17 per cent above April 1941 and 21 per cent above the 10-year (1931-40) average. Increases over last year ranged from 10 per cent in the North Atlantic and Western areas to 23 per cent in the West North Central area. The aggregate production January through April exceeds the former (1941) record production by 16 per cent.

There were 342,589,000 layers on farms during April, a record number, which exceeded both April 1941 and the 10-year April average number by 14 per cent. Increases over last year ranged from 7 per cent in the North Atlantic area to 19 per cent in the South Central area.

The rate of lay in April—17.49 eggs per layer—was also a new record high and compares with 16.93 eggs a year earlier and with the previous record high of 17.46 eggs in April 1938. The April rate of lay was higher than last April in all sections of the country ranging from 1.8 per cent in the Western States to 5.0 per cent in the West North Central States.

The Government purchase program is still the important influence in the egg situation. Continuous buying has stimulated production, which in April was at a record high. The estimated increase over last year in total eggs produced was 17 per cent. The increase was greatest in the area which includes Minnesota, Iowa, Missouri, the Dakotas, Nebraska, and Kansas, where it amounted to 23 per cent. Reports on weekly receipts at Central Western packing plants, which revealed seasonal increases throughout the year to the early part of May, have shown a downward trend each successive week since then. Nevertheless, receipts at these country assembling points continue about 60 per cent greater than those of a year ago.

This year's seasonal production trend is not so clearly indicated by reports covering Pacific Coast packing plants, although for the most part these, too, show a tendency toward some reduction this month. As compared with a year ago, Pacific Coast increases have been running about 25 per cent, the greater part of which is in California. Changes in production and country marketings are not reflected in terminal market receipts, for these show decreases under a year ago of 8 per cent in April, and about 4 per cent in May.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Receipts of Eggs (cases) at 4 Markets*

| Geographic Section | April 1942 | April 1941 | % change | Jan. to Apr., Inc. 1942 | Jan. to Apr., Inc. 1941 | % change |
|---|---|---|---|---|---|---|
| New England | 88,282 | 49,810 | + 77.2 | 339,636 | 217,087 | + 56.5 |
| Middle Atlantic | 303,060 | 252,617 | + 20.0 | 1,070,305 | 905,243 | + 18.2 |
| South Atlantic | 69,859 | 45,825 | + 52.4 | 154,899 | 105,500 | + 46.8 |
| East North Central | 443,624 | 487,419 | − 9.0 | 1,288,417 | 1,217,757 | + 5.8 |
| West North Central | 827,429 | 1,071,047 | − 22.7 | 2,210,170 | 2,801,488 | − 21.1 |
| South Central | 52,111 | 26,438 | + 97.1 | 101,867 | 46,077 | +121.1 |
| Mountain | 23,808 | 28,017 | − 15.0 | 72,519 | 88,415 | − 18.0 |
| Pacific | 1,632 | 10,336 | − 84.2 | 39,819 | 36,555 | + 8.9 |
| Miscellaneous | 491 | 626 | − 21.6 | 1,580 | 1,895 | − 16.6 |
| TOTAL | 1,810,296 | 1,972,135 | − 8.2 | 5,279,212 | 5,420,017 | − 2.6 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic Section | April 1942 | April 1941 | % change | Jan. to Apr., Inc. 1942 | Jan. to Apr., Inc. 1941 | % change |
|---|---|---|---|---|---|---|
| New England | 482,732 | 408,796 | + 18.1 | 893,980 | 1,134,447 | − 21.2 |
| Middle Atlantic | 5,362,046 | 4,580,824 | + 17.1 | 10,837,820 | 9,701,420 | + 11.7 |
| South Atlantic | 6,998,856 | 2,846,206 | +145.9 | 21,277,469 | 10,077,308 | +111.1 |
| East North Central | 1,808,028 | 2,577,314 | − 29.8 | 8,624,124 | 11,598,220 | − 25.6 |
| West North Central | 5,975,623 | 5,830,304 | + 2.5 | 31,465,428 | 36,170,336 | − 13.0 |
| South Central | 1,301,865 | 2,040,741 | − 36.2 | 4,973,683 | 6,270,288 | − 20.7 |
| Mountain | 107,287 | 193,176 | − 44.5 | 2,768,909 | 2,345,357 | + 18.1 |
| Pacific | 369,155 | 684,023 | − 46.0 | 3,190,837 | 5,553,524 | − 42.5 |
| Miscellaneous | 0 | 0 | – | 0 | 0 | - |
| TOTAL | 22,405,592 | 19,161,384 | + 16.9 | 84,032,250 | 82,850,900 | + 1.4 |

*New York, Chicago, Philadelphia and Boston.

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change From Last Year |
|---|---|---|---|---|
| May 2 | 25 | 53,125 | −0.22 | +33.67 |
| May 9 | 28 | 59,698 | +3.47 | +43.82 |
| May 16 | 24 | 47,589 | −3.27 | +43.72 |
| May 23 | 28 | 56,887 | −2.48 | +41.47 |
| May 30 | 24 | 50,562 | −3.87 | +45.47 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change From Last Year |
|---|---|---|---|---|---|
| May 2 | 62 | 87,856 | 70,319 | −0.94 | +24.94 |
| May 9 | 62 | 89,256 | 69,538 | +1.24 | +28.36 |
| May 16 | 62 | 86,581 | 69,110 | −1.35 | +25.28 |
| May 23 | 59 | 83,752 | 66,687 | −4.45 | +24.59 |
| May 30 | 59 | 85,333 | 64,379 | +1.75 | +32.55 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1942 | Cases of Eggs 1941 | % Chg. | Pounds of Poultry (000 omitted) 1942 | 1941 | % Chg. | Pounds of Young Stock (000 omitted) 1942 | 1941 | % Chg. | Pounds of Fowl (000 omitted) 1942 | 1941 | % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| May 2 | 478,765 | 300,913 | +59.10 | 1,620 | 1,732 | − 6.49 | Discontinued Until Larger Volume is Available | | | 1,260 | 1,363 | − 7.52 |
| May 9 | 468,938 | 305,254 | +53.62 | 1,764 | 2,177 | −18.99 | | | | 1,368 | 1,691 | −19.06 |
| May 16 | 472,614 | 307,372 | +53.76 | 2,143 | 2,693 | −20.42 | | | | 1,572 | 1,975 | −20.42 |
| May 23 | 442,105 | 268,200 | +64.84 | 2,418 | 2,910 | −16.92 | | | | 1,691 | 2,109 | −19.79 |
| May 30 | 411,235 | 279,404 | +47.18 | 2,671 | 2,783 | − 4.03 | | | | 1,829 | 1,858 | − 1.56 |

## Egg-Feed Ratios

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1942 | 1941 | 10-Yr. Avg. 1931-40 | Price of Fresh Graded Firsts (Dollars) 1942 | 1941 | Cost of Ration per 100 lbs. (Dollars) 1942 | 1941 |
|---|---|---|---|---|---|---|---|
| May 2 | 5.49 | 6.08 | 6.84 | .310 | .217 | 1.70 | 1.32 |
| May 9 | 5.74 | 6.19 | 6.83 | .303 | .217 | 1.74 | 1.34 |
| May 16 | 5.88 | 6.03 | 6.87 | .295 | .229 | 1.73 | 1.38 |
| May 23 | 5.72 | 5.90 | 7.05 | .301 | .234 | 1.72 | 1.38 |
| May 30 | 5.60 | 5.83 | 7.15 | .308 | .237 | 1.73 | 1.38 |

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1942 | 1941 | 1940 | Avg. Egg Price Per Doz. (Dollars) 1942 | 1941 | 1940 | Avg. Feed Cost Per 100 lbs. (Dollars) 1942 | 1941 | 1940 |
|---|---|---|---|---|---|---|---|---|---|
| May 7 | 7.8 | 8.8 | 10.8 | .30 | .234 | .185 | 2.42 | 2.06 | 1.99 |
| May 14 | 7.9 | 8.5 | 10.0 | .306 | .249 | .187 | 2.42 | 2.12 | 1.91 |
| May 21 | 7.9 | 8.1 | 10.7 | .308 | .26 | .18 | 2.42 | 2.10 | 1.92 |
| May 28 | 7.6 | 8.1 | 10.8 | .32 | .258 | .178 | 2.43 | 2.09 | 1.92 |

### Central California Egg-Feed Ratio

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1942 | 1941 | 1940 | 1939 | 1938 | 1937 |
|---|---|---|---|---|---|---|
| April | 7.88 | 7.88 | 10.01 | 7.84 | 8.54 | 10.33 |
| Jan.-Apr. | 7.63 | 7.58 | 9.67 | 7.32 | 8.30 | 9.62 |
| Year | | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 |

—Data Compiled by Dorothy B. Erdahl, University of California.

## Egg Prices

### 1942 Egg Prices at New York City

| Kind | May 1 | May 8 | May 15 | May 22 | May 29 | May. 29 '41 |
|---|---|---|---|---|---|---|
| Mixed Color Firsts | 30¾ | 30 | 29½-29¾ | 30¾ | 31¼ | 24¾ |
| Wholesale Sales of Fancy and Extra Fancy White | 32¾-34½ | 31¼-33½ | 31¼-33½ | 32½-34¾ | 33¼-36 | 27½-29 |
| Nearby and Midwestern White Exchange Specials | 32-32¼ | 31 | 30¾-31 | 31¾-32 | 32½-32¾ | 26½-27 |
| Pacific Coast Specials | 39-39½ | 39-39½ | 39-39½ | 39-39½ | 39½ | 33½-34 |
| Nearby and Midwestern Brown Specials | 32 | 30¾ | 30¾ | 32 | 32¼ | 27 |

Egg markets had a mixed tone during May. The trend of prices generally was slightly upward, averaging, however, only about ½ cent. In the principal eastern markets, prices sagged toward the middle of the month, but by the close of May had advanced from 1 to 2 cents, depending upon grade, over the low points in mid-month. May prices have averaged only slightly higher than April, but are 6 to 7 cents higher than a year ago. The price of Mixed Color Firsts at New York on May 29 was 31¼ cents. Nearby White Specials were 32½ to 32¾ cents, and Pacific Coast Specials were 39½ cents. Chicago Firsts were quoted at 30½-31 cents. U. S. Extras at San Francisco were 32½ cents, 34 cents at Los Angeles, and 35 cents at Seattle.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Government Purchases

**Purchases of Eggs and Poultry Products by the U. S. D. A.**

| Week Ending | Shell Eggs | Dried Eggs |
|---|---|---|
| | Cases | 1,000 lbs. |
| May 2 | 3,252 | 7,317 |
| May 9 | 16,435 | 8,519 |
| May 16 | 4,530 | 8,227 |
| May 23 | 3,894 | 6,038 |
| May 30 | 3,479 | 4,576 |
| 1942 Total to May 30 | 420,598 | 138,941 |

The bulk of the AMA purchases is still dried eggs. During May the quantities taken weekly have averaged 7½ million pounds. Purchases in April, when production was at the peak, exceeded 12 million pounds weekly. Of the 57 million pounds bought in April, deliveries were taken of 18½ million pounds. Unfilled contracts as of May 1 were reported to be approximately 76¾ million pounds. Shell egg purchases in April amounted to only 20,500 cases, but May will exceed this amount. Included in the May purchases are 11,900 cases of processed eggs bought on the West Coast. Excluding the latter, weekly purchases in May average about 4,000 cases per week.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Eggs in Storage

Total U. S. storage stocks of shell eggs were increased 2,850,000 cases during April, and on May 1 were 4,650,000 cases. Last year's stocks on this same date were 3,031,000 cases, and the 1937-41 average is 3,468,000 cases. The into-storage movement in the 35 cities since May 1 shows a net increase fully 10 per cent less than that of the corresponding period last year. On May 2 they were 32 per cent over a year earlier, while by May 23 they represented an increase of but 14 per cent.

Total U. S. stocks of frozen eggs on May 1 were 159 million pounds, compared with 99½ million pounds on May 1, 1941, and a 1937-41 average of 94½ million pounds. The 35 cities storage increase between May 2 and May 23 this year was 75 per cent greater than that of the corresponding period in May 1941, which is of some significance in the light of the shell egg increase being less than that of last year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Storage Holdings of Eggs**

| Kind | May 1 5-Yr. Avg. 1937-41 | May 1 1941 | Apr. 1 1942 | May 1 1942 | % Change May '41-May '42 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| Shell Eggs (cases) | | | | | |
| SMA and FSCC | | 215 | 96 | 56 | −74.0 |
| Commercial | 3,468 | 2,816 | 1,702 | 4,594 | +63.1 |
| Total | 3,420 | 3,031 | 1,798 | 4,650 | +53.4 |
| Frozen Eggs (lbs.) | | | | | |
| SMA and FSCC | | | 11,808 | 6,637 | |
| Commercial | | | 95,589 | 152,539 | |
| Total | 94,382 | 99,531 | 107,397 | 159,176 | +59.9 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 2,517 | 2,654 | 2,864 | 4,245 | +59.9 |
| Total (cases) | 5,985 | 5,685 | 4,662 | 8,895 | +56.4 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

## Poultry Meat Prices

Prices of live poultry advanced during May. All classes shared in the upward trend, with young stock particularly affected. In contrast, the May 1941 market was easy and irregular. Prices for fowl prevailing at the close of the month ranged 2 to 5 cents higher, and young stock 4 to 9 cents higher than a year ago on the various markets. Live turkey markets showed no change at Chicago, but on Eastern markets advanced 1 to 2 cents. On all principal markets live turkeys were selling 3 to 4 cents higher than a year ago.

Weekly gains in receipts of poultry at the Central Western Primary Markets during May were appreciably less than a year ago. Receipts of fowl and total receipts of all poultry at these points were approximately 20 per cent less than a year ago. However, this total volume which has held considerably below previous years levels for several months, is tending toward a more normal volume. Relatively light marketings of live poultry and the reported 17 per cent increase in the production of eggs during April reflect the favorable relationship existing between egg and feed prices. There were 14 per cent more layers reported on farms in April and on May 1 there were 16 per cent more chickens on farms than a year ago.

Prices advanced moderately during May, with receipts above last year and out of storage movement liberal indicating good consumption. During the corresponding period last year, the price trend was downward and there was an unsatisfactory storage stock reduction. On Eastern markets, fresh killed western fowl advanced fractionally during the month, frozen broilers were up 1½ cents, frozen roasters up 2 cents, and frozen turkeys up ½ to 1 cent.

Receipts of dressed poultry at the 4 principal markets were 6 per cent heavier in March, 17 per cent heavier in April, and approximately the same during May this year as compared to the corresponding months a year ago. As would be expected at this season of the year, increases in receipts of dressed poultry came largely from the eastern commercial broiler producing areas. April receipts from the South Atlantic section, which includes Delaware, Maryland, and Virginia, showed an increase of 146 per cent over the same month last year. The Middle Atlantic and New England sections showed increases of 17 to 18 per cent. With the exception of a small gain for the North Central area, during April receipts for all other sections declined 29 to 46 per cent from a year ago. Total receipts of dressed poultry at the four leading markets January through April showed an increase of 1.4 per cent over a year ago, but this differential decreased somewhat during May. Heavy increases in receipts of dressed poultry this season at New York were offset somewhat by declines at Philadelphia and Boston.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Poultry in Storage

May 1 U. S. cold storage stocks of dressed poultry totaled 96 million pounds, which was 5 million pounds less than a year ago and 10 million pounds less than the previous 5-year average May 1 holdings. Stocks of broilers, roasters, and turkeys were the principal classes showing decreases. During April, total U. S. holdings were reduced 43 million pounds, as compared to 26 million pounds last year, and a previous 5-year average April reduction of 24 million pounds.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Storage Holdings of Poultry**

| Kind | May 1 5-Yr. Avg. 1937-41 | May 1 1941 | Apr. 1 1942 | May 1 1942 | % Change May '41-May '42 |
|---|---|---|---|---|---|
| | | Thousand Pounds | | | |
| Broilers | 6,316 | 4,458 | 8,551 | 5,745 | +28.8 |
| Fryers | 5,804 | 5,967 | 9,546 | 5,124 | –14.1 |
| Roasters | 14,569 | 17,980 | 24,298 | 15,747 | –12.5 |
| Fowls | 13,333 | 17,971 | 24,478 | 17,644 | – 1.9 |
| Turkeys | 27,854 | 36,221 | 45,757 | 35,372 | – 5.2 |
| Ducks | 1,433 | 1,664 | 1,700 | 1,370 | –17.7 |
| Miscellaneous | 13,264 | 9,906 | 16,583 | 10,280 | + 3.7 |
| Unclassified | | 6,962 | 8,764 | 5,159 | –25.9 |
| Total | 82,573 | 101,129 | 139,677 | 96,441 | – 4.7 |

## Egg Breaking Operations

The production of 94,100,000 pounds of liquid eggs by commercial egg breaking plants during April was larger than the production during April last year by 41,308,000 pounds, or 78 per cent. The plants reported that 59,001,000 pounds were frozen compared with 46,826,000 pounds in April last year and 2,541,000 pounds were used for immediate consumption compared with 2,776,000 pounds a year earlier. From the remaining 32,558,000 pounds, plus the eggs broken out by strictly egg drying plants, 21,714,358 pounds of dried eggs were produced compared with 3,517,965 pounds in April 1941.

Government purchases continue to dominate the dried egg industry. Practically all of the dried eggs produced in April were in the whole form and were sold to the Government for Lease-Lend uses. The production of dried albumen was 72 per cent less than the total produced in April last year and the production of yolk 19 per cent less. The Agricultural Marketing Administration accepted offers on 56,831,605 pounds of dried egg in April. Offers accepted May 1 to May 14, totaled 16,746,380 pounds.

Large quantities of frozen and shell eggs apparently are being stored to be used later in the year for drying eggs. Out of a total of 11,196,304 pounds of dried eggs on hand on May 1 only 350,049 pounds remained unsold.

**Dried Egg Production, April 1941-42**

| Commodity | April 1941 | April 1942 | % change in 1942 |
|---|---|---|---|
| | | Pounds | |
| Whole | 243,497 | 19,609,258 | +7,953 |
| Albumen | 1,031,979 | 290,652 | – 72 |
| Yolks | 2,242,489 | 1,814,448 | – 19 |
| Total | 3,517,965 | 21,714,358 | + 517 |
| Firms reporting | 59 | | |

**Liquid Egg Production, April 1941-42**

| | | April 1941 | April 1942 | % change in 1942 |
|---|---|---|---|---|
| | | Thousand pounds | | |
| Whole eggs | | 13,620 | 43,286 | +218 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 7,074 | 12,233 | + 73 |
| Egg whites (all descriptions) | | 17,844 | 22,302 | + 25 |
| Egg yolks packed | Without salt, sugar, etc. | 4,751 | 6,587 | + 39 |
| | With sugar | 8,183 | 7,904 | – 3 |
| | With salt | 1,320 | 1,788 | + 35 |
| | All yolk emulsions, including glycerine | —— | —— | |
| Total | | 52,792 | 94,100 | + 78 |

## Hatchery Operations

The output of 283,359,000 chicks by commercial hatcheries during April was the largest of record—19 per cent larger than the number hatched in April last year and 17 per cent larger than the previous high month of March 1942. Production of commercially hatched chicks for the first four months of the year shows an increase of 106,848,000 chicks or 19 per cent over the same period last year.

Increases in the number of chicks hatched in April were reported in all sections of the country, ranging from a 5 per cent increase in the Mountain States to 24 per cent in the West North Central States. The increase in the West North Central States so far this year, accounts for about 49 per cent of the increase shown for the country.

The demand for chicks for broilers continues slow in several of the larger commercial broiler areas. Hatcheries in these areas show less chicks hatched than last year.

The number of eggs set in April was 19 per cent larger than the number set in April last year. All sections of the country reported increases—South Atlantic States 7 per cent, East North Central and South Central States each 12 per cent, New England States 13 per cent, Middle Atlantic States 20 per cent, Mountain States 23 per cent, Pacific Coast States 26 per cent and the West North Central States 28 per cent.

On May 1, 15 per cent more chicks were on order than last year and a comparatively large hatch for May can be expected. However, in view of the early and very large hatch so far this year, the late demand for chicks may not continue as strong.

There was very little change in the proportion of light and heavy breeds hatched in April this year compared with April last year. Hatcheries reported 38 per cent of all chicks hatched in April were of the light breeds and 62 per cent were of the heavy breeds, compared with 37 per cent light breeds and 63 per cent heavy breeds in April last year. The number of chicks sexed was 47 per cent larger than in April last year, which indicates quite clearly the emphasis being placed this year on chicks for egg laying purposes.

Reports from 100 hatcheries on turkey operations in April showed 6 per cent more turkey eggs set and 8 per cent more poults hatched, compared with April last year. Orders for poults on May 1 showed an increase of 13 per cent over the same date last year.

**Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing**

| Geographic Divisions | Chicks booked May 1 | % Light Breed hatched | | % Heavy Breed hatched | | Sexing |
|---|---|---|---|---|---|---|
| | % change from May 1, 1941 | Apr. 1941 | Apr. 1942 | Apr. 1941 | Apr. 1942 | % change from Apr. 1941 |
| New England | +10 | 6 | 6 | 94 | 94 | +210 |
| Middle Atlantic | +10 | 49 | 43 | 51 | 57 | + 66 |
| South Atlantic | + 2 | 14 | 13 | 86 | 87 | + 75 |
| E. N. Central | +22 | 34 | 34 | 66 | 66 | + 31 |
| W. N. Central | +16 | 44 | 49 | 56 | 51 | + 47 |
| So. Central | +26 | 29 | 32 | 71 | 68 | + 49 |
| Mountain | +48 | 49 | 48 | 51 | 52 | + 6 |
| Pacific | + 9 | 71 | 73 | 29 | 27 | + 35 |
| U. S. | +15 | 37 | 38 | 63 | 62 | + 47 |

**Chicks Hatched by Commercial Hatcheries**

| Geographic Divisions | Apr. 1939 | Apr. 1940 | Apr. 1941 | Apr. 1942 | % chg. from Apr. 1941 | Jan.-Apr. Inc. 1941 | Jan.-Apr. Inc. 1942 | % chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 8,545 | 9,322 | 9,080 | 10,498 | +16 | 34,730 | 38,036 | +10 |
| Middle Atlantic | 18,768 | 18,567 | 18,810 | 22,477 | +19 | 51,118 | 58,576 | +15 |
| South Atlantic | 16,932 | 18,529 | 18,875 | 21,927 | +16 | 55,517 | 61,886 | +11 |
| E. N. Central | 70,292 | 71,004 | 68,627 | 80,805 | +18 | 144,349 | 164,259 | +14 |
| W. N. Central | 84,231 | 79,626 | 81,061 | 100,245 | +24 | 152,349 | 204,408 | +34 |
| South Central | 24,038 | 24,857 | 26,238 | 30,207 | +15 | 74,818 | 89,453 | +20 |
| Mountain | 4,788 | 4,789 | 4,798 | 5,038 | + 5 | 11,459 | 11,322 | – 1 |
| Pacific | 13,473 | 9,765 | 10,343 | 12,162 | +18 | 36,346 | 39,594 | + 9 |
| U. S. | 241,067 | 236,459 | 237,832 | 283,359 | +19 | 560,686 | 667,534 | +19 |

¶ AN old superstition still believed in some sections of the world: If the breastbones of ducks are white at the end of winter, a quick spring will result for, "Such creatures do sensibly feel the bounds and approaches of seasons, however out of course and extraordinary they may be."

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, April, 1942.

¶ EVERY time a U. S. food freighter is sunk, a whole year's production of 229,137 hens goes down with it, the U. S. Department of Agriculture War Board estimates. Each food freighter carries 6,000 barrels of dried eggs among many other food products.

# "Fine Feathers Make" . . . Pillows

By H. L. SHRADER

*Condensed from American Poultry Journal*

FEW poultry producers are familiar with the organized feather industry. Most poultry raisers' interest in feathers has been limited to color and sheen of the plumage of an exhibition bird and lack of feathers on the back of broiler chickens. Feathers have a wide variety of industrial uses. Most people sleep on feather pillows, unless, unfortunately, they are allergic to feathers.

Feathers are also used in comforters and quilts and for stuffing in certain types of upholstery. Brightly colored feathers are used in making lures and flies for fishing. They are fastened to the shaft of arrows, and large numbers are used in make-believe Indian suits, so highly prized by children.

The millinery trade has found ways to dye and shape certain feathers for ladies' hats, and recently stylists have been able to slip a bright colored feather under the band of certain styles of men's hats. The great bulk of feathers, however, are utilized by the bedding industry.

The U. S. both imports and exports feathers. Normally, we produce a big surplus of chicken and turkey feathers but import waterfowl feathers. In 1940, we imported more than three times as many pounds of feathers as we exported, and the value of imports was more than 15 times our exports. Just now, we are shut off from the countries which furnished us our principal supply of waterfowl feathers: Poland, France, Czechoslovakia, and China. After the European supply was cut off, we received some feathers from Japan.

## A Highly Specialized Business

Cleaning, processing, sorting, curing, and curling of feathers is a highly specialized business. Commercially, feathers are divided into down and true feathers. There is also a division in regard to color, white feathers commanding the highest prices. Feathers just plucked are called raw feathers. When they are dried or cured, the trade calls them "crude feathers."

Our imports arrive in bales of crude feathers. After they are washed and the dirt and blood removed, they are called "cleaned feathers." There are 10 major market classifications for cleaned feathers, which are further sub-divided into 200 price series. Each color or type of feather has its own particular use. Poultry producers would be amazed to see the various machines for sorting and processing feathers in a modern manufacturing plant.

Feathers are a war-time commodity because of their value as an insulating material. When weight and warmth both must be considered, there is no close rival. The tightly curled down from duck and goose feathers forms little air pockets that keep out cold and hold body heat. We can expect our skilled feather manufacturers to blend the available down with certain soft feathers to give our armed forces the best product possible under present supply conditions.

We have a large potential supply of chicken and turkey feathers in this country. At the present time, only a small percentage of these are saved. War-time demands have increased the price, until now commercial dressing plants have found it profitable to install the necessary machinery to salvage such feathers. When chickens were dry picked, very little equipment, except bins for drying and storing feathers, was necessary. When the slack-scalding method of dressing became common, the wet feathers had to be handled differently. The system in practice now is to wash wet feathers in a centrifugal washer and remove all dirt and blood. Feathers are then dried and packed in large sacks for shipment to wholesalers.

In chicken and turkey feathers, we have a splendid insulation material, and it is a challenge to our American ingenuity to get them in such form that they can be utilized. Chemists are already experimenting with a process in which the feathers are first dissolved in a chemical solution, then converted into a fine thread or yarn. Other technicians are using mechanical methods to break down the fibers and thus give us animal fiber with superior insulation values. Who knows, we may come out of this war with a valuable product made from chicken and turkey feathers that are now being hauled out for fertilizer. With about 800,000,000 chickens and 35,000,000 turkeys being raised each year in this country, we have a potential supply of millions of pounds of feathers. Now is a good time to make use of them.

American Poultry Journal, 536 So. Clark St., Chicago, Ill.
(American Poultry Journal, May, 1942)

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ONE of the American newspapermen released from Italy in exchange for Axis nationals in May revealed that Italians were paying as much as $2.16 for a dozen eggs and $1 a pound for chicken in the "black market."

IN some part of Ireland egg shells are still smashed after a meal so that the fairies cannot make homes in them.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, April, 1942.

# RESULTS OF LAYING TESTS

Harco Orchards Rhode Island Reds still lead all other pens entered in standard laying tests throughout the country. Although the margin between the first place Harco pen, at the Rhode Island test, and the W. H. Wilson Red entry, at Georgia, is less than was the margin between the Harco entry and the second-place Holser's Valley Farm entry on April 1. The Harco pen has a 30-point lead, and, for the third consecutive month, is at the top of the pile.

A Harco hen, too, continues at the head of the list, having laid 204 eggs worth 224.15 points in 212 days, at the Maine test. Only 3 eggs and less than 7 points stand between this Harco hen and a Rinker Poultry Farm Leghorn at the Pennsylvania test, however.

Half of the top 20 pens in the country are Rhode Island Reds, a fine tribute to the breed. Eight of the remaining pens are White Leghorns, and two are New Hampshires.

Ford's Riverbank Farm Reds at the Missouri test led all 13-bird entries for April, producing 355 eggs, worth 380.75 points. Next high production for the month was that of a Western New York Leghorn entry owned by Booth Farms and Hatchery, which shelled out 345 eggs for 377.35 points in the month.

Competition between tests is keen, Arizona leading with an average of 147.60 points per bird. Storrs now stands but 4 points per bird behind the leader and Rhode Island, Pennsylvania, Hunterdon, N. J., and Georgia remain within striking distance of the top.

## Twenty High Pens, All Breeds, to May 1—(212 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 2309 | 2492.25 | Rhode Island |
| W. H. Wilson | Rhode Island Red | 2309 | 2462.55 | Georgia |
| Holser's Valley Farm | White Leghorn | 2301 | 2443.40 | Storrs |
| Hillview Poultry Farm | Rhode Island Red | 2348 | 2418.10 | California |
| Crooks Farm | Rhode Island Red | 2303 | 2413.25 | Pennsylvania |
| C. C. Hersey | Rhode Island Red | 2343 | 2409.45 | Storrs |
| J. A. Hanson | White Leghorn | 2287 | 2386.65 | Georgia |
| Ford's Riverbank Farm | Rhode Island Red | 2311 | 2384.10 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 2245 | 2377.35 | Storrs |
| Joachim Breeding Farm | New Hampshire | 2252 | 2377.15 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 2191 | 2376.15 | Texas |
| W. H. Wilson | Rhode Island Red | 2288 | 2369.95 | Georgia |
| Thomas H. Mettler | Rhode Island Red | 2429 | 2368.10 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 2196 | 2362.40 | Georgia |
| Peckham Farm | Rhode Island Red | 2240 | 2359.20 | Rhode Island |
| Foreman Poultry Farm | White Leghorn | 2199 | 2350.45 | Missouri |
| George A. Pearce | New Hampshire | 2232 | 2347.25 | Hunterdon, N. J. |
| Babcock's Hatchery | White Leghorn | 2347 | 2336.70 | Pennsylvania |
| J. A. Hanson | White Leghorn | 2212 | 2335.65 | Pennsylvania |
| J. J. Warren | Rhode Island Red | 2185 | 2334.95 | Rhode Island |

## High Pen in Each Test to May 1—(212 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 2309 | 2492.25 | Rhode Island |
| W. H. Wilson | Rhode Island Red | 2309 | 2462.55 | Georgia |
| Holser's Valley Farm | White Leghorn | 2301 | 2443.40 | Storrs |
| Hillview Poultry Farm | Rhode Island Red | 2348 | 2418.10 | California |
| Crooks Farm | Rhode Island Red | 2303 | 2413.25 | Pennsylvania |
| Kauder's Pedigreed Leghorns | White Leghorn | 2191 | 2376.15 | Texas |
| Foreman Poultry Farm | White Leghorn | 2199 | 2350.45 | Missouri |
| George A. Pearce | New Hampshire | 2232 | 2347.25 | Hunterdon, N. J. |
| J. J. Warren | Rhode Island Red | 2188 | 2331.10 | Maine |
| J. A. Hanson | White Leghorn | 2199 | 2314.90 | Western New York |
| E. B. Parmenter | Rhode Island Red | 2221 | 2288.85 | Passaic, N. J. |
| Gold Spot Hatchery | White Leghorn | 2117 | 2234.20 | Arizona |
| Crescent Farms | New Hampshire | 1999 | 2109.50 | Florida |
| Foreman Poultry Farm | White Leghorn | 1956 | 2062.35 | Central New York |
| J. J. Warren | Rhode Island Red | 1992 | 2058.10 | Michigan |
| Foreman Poultry Farm | White Leghorn | 2122 | 2037.30 | Oklahoma |
| Crooks Farm | Rhode Island Red | 1909 | 1963.65 | Long Island |

## High Pen in Each Test for April

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Ford's Riverbank Farm | Rhode Island Red | 355 | 380.75 | Missouri |
| Booth Farms & Hatchery | White Leghorn | 345 | 377.35 | Western New York |
| Hillview Poultry Farm | Rhode Island Red | 356 | 373.75 | California |
| Crooks Farm | Rhode Island Red | 344 | 372.25 | Pennsylvania |
| Crooks Farm | Rhode Island Red | 329 | 355.30 | Storrs |
| Bodine's Pedigreed Leghorns | White Leghorn | 330 | 355.25 | Central New York |
| To-Lani Farm | Rhode Island Red | 331 | 352.60 | Georgia |
| Lux Leghorn Land | White Leghorn | 326 | 346.35 | Florida |
| Norman Amidon | Barred Rock | 323 | 340.55 | Maine |
| Holser's Valley Farm | White Leghorn | 323 | 339.45 | Passaic, N. J. |
| Booth Farms & Hatchery | White Leghorn | 316 | 336.30 | Arizona |
| Kauder's Pedigreed Leghorns | White Leghorn | 304 | 333.65 | Texas |
| Peckham Farm | Rhode Island Red | 310 | 332.60 | Rhode Island |
| George A. Pearce | New Hampshire | 305 | 328.10 | Hunterdon, N. J. |
| Sunrise Poultry Farm | White Leghorn | 310 | 325.75 | Michigan |
| Foreman Poultry Farm | White Leghorn | 309 | 324.90 | Long Island |
| Swift & Co. Hatchery | New Hampshire | 305 | 321.55 | Oklahoma |

## High Pen in Each Breed to May 1—(212 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 2309 | 2492.25 | Rhode Island |
| Holser's Valley Farm | White Leghorn | 2301 | 2443.40 | Storrs |
| Joachim Breeding Farm | New Hampshire | 2252 | 2377.15 | Storrs |
| Dryden Poultry Breeding Farm | Barred Rock | 2200 | 2244.15 | Storrs |
| Bagby Poultry Farm | White Rock | 1906 | 2014.45 | Texas |
| McDonald Hatchery | White Wyandotte | 1919 | 1991.40 | Texas |
| Ernest Pedigo | Australorp | 1810 | 1901.55 | Arizona |
| Raymond S. Thomas | Ancona | 1694 | 1733.35 | Pennsylvania |
| Harry L. Phillips | Columbian Rock | 1573 | 1688.90 | Missouri |
| T. D. Brown | White Minorca | 1596 | 1673.65 | Texas |
| Horne's Hatchery | Black Minorca | 1539 | 1672.15 | Texas |
| Imperial Breeding Farm | White Giant | 1605 | 1639.70 | Maine |
| Maine Test | Cross | 1464 | 1494.90 | Maine |
| Miami Chick Hatchery | Buff Rock | 1441 | 1444.00 | Michigan |
| Imperial Breed. Farm | New Hampshire White | 1284 | 1379.30 | Missouri |
| Iowa Master Breeders | Buff Orpington | 1418 | 1326.65 | Texas |
| C. A. Richardson | Buff Leghorn | 1319 | 1216.20 | Hunterdon, N. J. |
| Henry F. Waitt | Buff Minorca | 1187 | 1159.00 | Maine |
| Wellington Wells, Jr. | Silver Laced Wyandotte | 1162 | 1056.10 | Maine |
| F. G. Romance | Partridge Plymouth Rock | 959 | 928.15 | Florida |
| Philip Maddux | Black Leghorn | 964 | 893.95 | Long Island |

## High Hen in Each Breed to May 1—(212 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 204 | 224.15 | Maine |
| Rinker Poultry Farm | White Leghorn | 201 | 217.95 | Pennsylvania |
| Robert C. Cobb | Barred Rock | 204 | 215.75 | Storrs |
| George A. Pearce | New Hampshire | 204 | 208.90 | Hunterdon, N. J. |
| Paul Hansen | Australorp | 179 | 192.15 | California |
| Raymond S. Thomas | Ancona | 174 | 190.25 | Pennsylvania |
| Carter-Dunham | White Rock | 175 | 189.95 | Georgia |
| Harvey E. Taylor | White Wyandotte | 187 | 187.65 | Texas |
| Imperial Breeding Farm | White Giant | 164 | 176.65 | Maine |
| Maine Test | Cross | 165 | 173.70 | Maine |
| Harry L. Phillips | Columbian Rock | 158 | 166.90 | Missouri |
| Imperial Breed. Farm | New Hampshire White | 153 | 165.55 | Missouri |
| Miami Chick Hatchery | Buff Rock | 154 | 164.15 | Michigan |
| Horne's Hatchery | Black Minorca | 152 | 163.50 | Texas |
| T. D. Brown | White Minorca | 147 | 155.95 | Texas |
| Iowa Master Breeders | Buff Orpington | 148 | 150.10 | Texas |
| Henry F. Waitt | Buff Minorca | 157 | 144.30 | Maine |
| C. A. Richardson | Buff Leghorn | 136 | 128.25 | Hunterdon, N. J. |
| Donald C. Chandler | Silver Laced Wyandotte | 133 | 125.50 | Maine |
| Philip Maddux | Black Leghorn | 121 | 112.00 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 96 | 94.45 | Florida |

## High Hen in Each Test to May 1—(212 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 204 | 224.15 | Maine |
| Harco Orchards | Rhode Island Red | 200 | 219.00 | Rhode Island |
| Rinker Poultry Farm | White Leghorn | 201 | 217.95 | Pennsylvania |
| Robert C. Cobb | Barred Rock | 204 | 215.75 | Storrs |
| Crooks Farm | Rhode Island Red | 197 | 215.60 | Passaic, N. J. |
| A. B. Gillam | White Leghorn | 200 | 214.75 | Georgia |
| Greenlawn Poultry Farm | Rhode Island Red | 201 | 214.10 | Hunterdon, N. J. |
| Bagby Poultry Farm | Rhode Island Red | 196 | 211.85 | Arizona |
| Charles D. Deisher | White Leghorn | 202 | 209.75 | Texas |
| Foreman Poultry Farm | White Leghorn | 198 | 209.05 | Missouri |
| J. J. Warren | Rhode Island Red | 190 | 208.95 | Western New York |
| J. J. Warren | Rhode Island Red | 196 | 207.85 | California |
| W. A. Seidel | White Leghorn | 201 | 205.35 | Florida |
| Foreman Poultry Farm | White Leghorn | 182 | 199.10 | Central New York |
| J. J. Warren | Rhode Island Red | 184 | 198.15 | Michigan |
| Foreman Poultry Farm | White Leghorn | 192 | 195.05 | Oklahoma |
| E. B. Parmenter | Rhode Island Red | 179 | 194.15 | Long Island |

## Twenty High White Leghorn Pens to May 1—(212 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Holser's Valley Farm | 2301 | 2443.40 | Storrs |
| J. A. Hanson | 2287 | 2386.65 | Georgia |
| Kauder's Pedigreed Leghorns | 2245 | 2377.35 | Storrs |
| Kauder's Pedigreed Leghorns | 2191 | 2376.15 | Texas |
| Kauder's Pedigreed Leghorns | 2196 | 2362.40 | Georgia |
| Foreman Poultry Farm | 2199 | 2350.45 | Missouri |
| Babcock's Hatchery | 2347 | 2336.70 | Pennsylvania |
| J. A. Hanson | 2212 | 2335.65 | Pennsylvania |
| Jack O'Harrow | 2254 | 2324.15 | Texas |
| J. A. Hanson | 2199 | 2314.90 | Western New York |
| W. A. Seidel | 2184 | 2295.40 | Texas |
| Burr's Poultry Farm | 2234 | 2295.00 | Pennsylvania |
| J. A. Hanson | 2189 | 2281.30 | Storrs |
| W. A. Seidel | 2167 | 2253.55 | Texas |
| Rapp's Poultry Farm | 2128 | 2247.55 | Hunterdon, N. J. |
| Gold Spot Hatchery | 2117 | 2234.20 | Arizona |
| Kauder's Pedigreed Leghorns | 2065 | 2219.80 | Pennsylvania |
| Foreman Poultry Farm | 2145 | 2215.20 | Storrs |
| Booth Farms & Hatchery | 2145 | 2210.80 | Pennsylvania |
| Holser's Valley Farm | 2225 | 2204.05 | Storrs |

## Twenty High Rhode Island Red Pens to May 1—(212 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Harco Orchards | 2309 | 2492.25 | Rhode Island |
| W. H. Wilson | 2309 | 2462.55 | Georgia |
| Hillview Poultry Farm | 2348 | 2418.10 | California |
| Crooks Farm | 2303 | 2413.25 | Pennsylvania |
| C. C. Hersey | 2343 | 2409.45 | Storrs |
| Ford's Riverbank Farm | 2311 | 2384.10 | Storrs |
| W. H. Wilson | 2288 | 2369.95 | Georgia |
| Thomas H. Mettler | 2429 | 2368.10 | Storrs |
| Peckham Farm | 2240 | 2359.20 | Rhode Island |
| J. J. Warren | 2185 | 2334.95 | Rhode Island |
| Harco Orchards | 2169 | 2334.20 | Storrs |
| J. J. Warren | 2188 | 2331.10 | Maine |
| Robert C. Cobb | 2232 | 2305.30 | Storrs |
| Crooks Farm | 2191 | 2298.20 | Storrs |
| E. B. Parmenter | 2221 | 2288.85 | Passaic, N. J. |
| G. B. Treadwell | 2203 | 2282.55 | Maine |
| To-Lani Farm | 2181 | 2264.85 | Georgia |
| E. B. Parmenter | 2093 | 2249.30 | Storrs |
| Crooks Farm | 2148 | 2244.45 | Storrs |
| E. B. Parmenter | 2158 | 2235.20 | Storrs |

## Twenty High New Hampshire Pens to May 1—(212 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Joachim Breeding Farm | 2252 | 2377.15 | Storrs |
| George A. Pearce | 2232 | 2347.25 | Hunterdon, N. J. |
| George A. Pearce | 2170 | 2265.70 | Storrs |
| Joachim Breeding Farm | 2075 | 2185.50 | Hunterdon, N. J. |
| James H. Horne | 2015 | 2122.85 | Storrs |
| Crescent Farms | 1999 | 2109.50 | Florida |
| W. G. Ashby | 1932 | 2081.25 | Arizona |
| Ebenwood Farm | 1947 | 2076.60 | Rhode Island |
| Hubbard Farms | 2000 | 2073.05 | Western New York |
| Del Rio Farm | 1918 | 2051.95 | Arizona |
| Joachim Breeding Farm | 2008 | 2041.55 | Pennsylvania |
| Hubbard Farms | 2003 | 2035.95 | Georgia |
| Howard Breeding Farm | 1914 | 2025.55 | California |
| Hubbard Farms | 1996 | 2020.85 | Pennsylvania |
| Clarence E. Colby | 1943 | 2020.60 | Storrs |
| Hubbard Farms | 1954 | 2020.25 | Storrs |
| Forest Hill Poultry Farm | 1955 | 2016.45 | Storrs |
| Pine Mountain Valley Farms | 1954 | 2005.45 | Georgia |
| Thomas J. Harrold | 1982 | 2004.95 | Georgia |
| Fairport Hatchery | 1957 | 2001.10 | Western New York |

## Twenty High Barred Plymouth Rock to May 1—(212 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 2200 | 2244.15 | Storrs |
| J. W. Schaible | 2183 | 2157.40 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 2165 | 2155.35 | Pennsylvania |
| Dryden Poultry Breeding Farm | 2090 | 2149.85 | Storrs |
| Harco Orchards | 2195 | 2109.80 | Maine |
| Foster Jameson | 1978 | 2083.35 | Maine |
| Dryden Poultry Breeding Farm | 2062 | 2076.25 | California |
| A. J. Urquhart | 2017 | 2021.00 | Maine |
| Penn's Poultry Farm | 1981 | 2001.10 | Texas |
| Hockhockson Farm | 1913 | 1999.70 | Hunterdon, N. J. |
| Norman Amidon | 1956 | 1989.20 | Maine |
| Peachblow Farm | 1947 | 1973.50 | Maine |
| Harco Orchards | 1883 | 1972.05 | Storrs |
| Dryden Poultry Breeding Farm | 1940 | 1960.30 | California |
| Harco Orchards | 1870 | 1955.75 | Rhode Island |
| Vincent Nasto | 1965 | 1953.15 | Hunterdon, N. J. |
| Fisher Orchards | 1841 | 1953.15 | Pennsylvania |
| J. W. Schaible | 1999 | 1915.65 | Passaic, N. J. |
| Riley Poultry Farm | 1943 | 1906.75 | Georgia |
| A. J. Urquhart | 1874 | 1899.30 | Passaic, N. J. |

## Twenty High White Plymouth Rock Pens to May 1—(212 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Bagby Poultry Farm | 1906 | 2014.45 | Texas |
| Riley Poultry Farm | 1999 | 2003.90 | Storrs |
| Missouri Valley Hatchery | 1867 | 1973.90 | Texas |
| Missouri Valley Hatchery | 1938 | 1970.80 | Georgia |
| Riley Poultry Farm | 1936 | 1945.10 | Georgia |
| Ralph DeYoung | 1837 | 1881.25 | Maine |
| Four Winds Farm | 1819 | 1868.95 | Michigan |
| Carter-Dunham | 1730 | 1848.10 | Texas |
| Carter-Dunham | 1694 | 1802.05 | Georgia |
| Imperial Breeding Farm | 1798 | 1772.45 | Storrs |
| Albert C. Lawton | 1683 | 1745.40 | Storrs |
| Holtzapple Poultry Farm | 1723 | 1741.75 | Georgia |
| Booth Farms and Hatchery | 1639 | 1741.05 | Missouri |
| Booth Farms and Hatchery | 1687 | 1740.50 | Texas |
| Inspiration Acres | 1818 | 1737.50 | Florida |
| Albert C. Lawton | 1695 | 1720.25 | Rhode Island |
| Holtzapple Poultry Farm | 1671 | 1715.20 | Pennsylvania |
| Pay Streak Hatchery | 1662 | 1707.20 | Pennsylvania |
| Robert K. Shearer | 1761 | 1706.95 | Pennsylvania |
| Superior Hatchery | 1668 | 1706.05 | Texas |

## Average Production and Mortality, Each Test, to May 1—(212 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for Apr. | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Arizona | 390 | 140.43 | 147.60 | 25.02 | 2.83 | 9.50 |
| Storrs | 1,352 | 139.63 | 143.49 | 24.54 | 1.56 | 7.70 |
| Rhode Island | 611 | 135.14 | 142.06 | 25.02 | 1.48 | 10.32 |
| Pennsylvania | 1,105 | 139.24 | 141.36 | 24.30 | 1.72 | 8.15 |
| Hunterdon, N. J. | 624 | 136.69 | 140.06 | 24.50 | 1.44 | 8.82 |
| Georgia | 1,326 | 137.46 | 139.65 | 24.30 | 2.19 | 10.26 |
| Texas | 1,456 | 130.71 | 135.02 | 24.66 | 1.79 | 8.66 |
| California | 598 | 129.19 | 131.83 | 24.40 | 1.01 | 7.70 |
| Florida | 1,118 | 127.89 | 130.98 | 24.48 | 1.52 | 8.41 |
| Passaic, N. J. | 871 | 125.51 | 128.50 | 24.46 | 3.68 | 13.21 |
| Maine | 988 | 124.57 | 125.26 | 24.10 | 1.41 | 7.29 |
| Western New York | 975 | 119.91 | 124.82 | 24.66 | 1.64 | 7.39 |
| Missouri | 780 | 107.63 | 114.59 | 25.28 | 2.18 | 9.62 |
| Oklahoma | 650 | 114.06 | 114.35 | 24.04 | 2.00 | 9.39 |
| Central New York | 1,066 | 109.37 | 113.12 | 24.68 | 1.51 | 7.81 |
| Long Island | 1,092 | 110.06 | 110.26 | 24.02 | 2.00 | 9.15 |
| Michigan | 871 | 107.71 | 107.33 | 23.92 | 2.87 | 14.36 |
| All Tests | 15,873 | 125.01 | 128.84 | 24.79 | 1.93 | 9.27 |

AN EXCERPT from the archives of the Department of Puy de Dome in Franc dated 1481: "Any man (or woman) who sells bad eggs shall be exposed on the pillor and the said eggs shall be given to the children to amuse themselves by throwning them at him."

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, April, 1942.

ANNA NEAGLE, blond British screen star, had three eggs for breakfast when she stopped over at Chicago after her recent return from Britain. Miss Neagle was catching up for eggs she didn't get during her stay in England, where one egg is a week's ration. says the Poultry and Egg National Board Reporter.

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NATIONAL

POULTRY DIGEST

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Vol. 4, No. 43 July 15, 1942

# Egg Marketing and the War

By E. A. PERREGAUX
University of Connecticut

*Condensed from a Talk*

WHILE the problems facing egg and poultry cooperatives have been intensified by the war, many of the changes in the methods of operation have come about so gradually that we have not realized fully how much our organizations have changed their selling procedures.

When they were organized, associations with small volume sold largely to local buyers. Many of these buyers, in turn, were retailing to consumers. The small volume they handled made the auction a convenient place to get all their supply or to get what they needed to supplement their own production. They did not quibble over a cent or two above market price as long as they could get the size or quality they wanted.

## Larger Outlets Needed

However, when the volume handled by the associations increased, these buyers were no longer adequate, and the associations had to seek larger outlets. These included chain stores, large independent markets, and milk distributors. These larger buyers had other alternatives and scrutinized prices more carefully.

The auction did not fit their needs so well, as they preferred to buy at private sale the quantity of the quality or size they required.

From, "How the War Is Changing our Selling Procedures"
Presented at Neppco Business Management Conference for Cooperatives, New York, N. Y., May 28, 1942

This shift in outlets led to abandonment of the auction method of selling in many auctions for the sale of a part or all of their eggs. Some associations now simply use the auction for their sales to small local buyers, the rest being sold at private sale.

The next step which followed was the pooling of returns to producers in direct contrast with the original practice of individual returns on each sale. I cite these two market changes, which occurred prior to the war, to indicate the point that many of these shifts were taking place before the impact of the present emergency.

### Making Country Collections

One problem of which our associations in Connecticut are conscious concerns the collection of eggs in the country. The recognition of this problem led to a request for a study by the University, and such a study was made by Hansen and Bressler. This report does not cover the whole study; simply some of the findings and conclusions.

Eggs are hauled to the associations by the producer, by association trucks, and by commercial haulers. Considerable duplication in hauling exists. Charges for hauling vary from 14 to 35 cents a case and average 19 cents per case. One association hauling eggs for its members is doing the job for 14 cents a case, whereas members had paid 20 cents to commercial haulers prior to the inauguration of their own collection service.

The five associations handled, for the week studied, 5,561 cases of eggs. Of these, 3,047 cases were brought in by commercial haulers and 2,5 by producers themselves. There were 29 commercial routes and 467 producers who brought in their own eggs. The self haulers traveled an estimated distance for the week of 12,560 miles and the trucks traveled 3,210, making a grand total of 15,7 miles.

The comparison of prices for the association collecting its own eggs indicates that the greater density achieved by this method saves money for producers. Hansen computed the savings possible by reallocation of truck routes and some consolidation of truck routes. He sums up the results in the following:

"Using trucks of 200-case capacity all the eggs could be brought in on 39 routes. If the market supply area were unchanged, but all eggs were brought in on efficiently organized commercial truck routes, the total weekly mileage would be 4,250 and the cost per case 12.6 cents. If only the most critical areas were consolidated (that is, Hartford and East Hartford stations and Hamden and New Haven stations), the total mileage would amount to 3,910 and the cost 12.1.

"If all the areas are revised to conform with the most efficient possible allocation, the total mileage would be 3,230 and the cost 11.0 cents per case. This can be compared with the present condition where 12,560 miles are used by self-haulers and 3,210 by commercial trucks."

### Meeting Transportation Problems

There is a shortage of rubber, transportation, and other essential materials and labor. All indications are that bad as they are now, the shortages will become greater. Co-operation between associations, as is proposed in Connecticut and elsewhere, can effect economies in the use of scarce materials and at the same time make savings for the producers. A saving of 5 to 10 cents a case is just as important, if not much more important, to producers than an increase in price of that amount. Should the associations give more concern to possibilities of consolidation or coordination in the collection of eggs?

One other factor enters here—return loads. As I understand it, the ODT is going to insist more and more that trucks carry loads both ways. Empty egg cases, I assume, would be included in the return load allowance. Delivery of feed by nature of the present set-up does not lend itself to loads back from market. It may be, however, that shortage of cars in the future might well result in changes in our methods of handling feeds and thus allow maximum use of trucking space by delivery of feed to some producers.

The transportation problem also will affect selling policies. Some associations already report a decrease in the number of small buyers who formerly sold either at retail or to stores. Some of these men are finding difficulty in getting tires. Others are being attracted by the wages paid by defense industries. Some of these men were small producers who increased their income by retail sales depending on the associations for that portion of their sales they did not produce. It is highly probable that this trend will continue and that the number of small buyers who sell at retail will dwindle rapidly. Those who continue to produce will probably join an association or sell to some other agency.

The buyer selling at retail who bought all his eggs will also tend to go out of business as his tires and equipment give out. His producers will have to seek new outlets.

### How About New Members?

Several associations report they already have had quite a few new producers apply for membership. This poses a problem to the association whose facilities are already used to capacity. There has been some discussion of closing membership. However, these eggs will find a market somewhere if they are not handled by the association, and it may be better management to continue to accept members even though new facilities may be necessary.

Many of our associations are receiving eggs from small shippers. Brockton, for instance, with approximately 1,000 members, had over 200 members who shipped less than 10 cases last year. The goodwill created by the acceptance of these members may offset the fact that they may not pay their way at the start. Some may develop into larger producers. The semi-public character of a cooperative would indicate that it might be good policy to take them in.

### Outlets Changing

Some change in the character of other sales outlets may also be expected. The chains have been large buyers at many of our auctions. The tendency on the part of the large chains during the last few years has been to abandon the neighborhood store in favor of the super-market, with its larger volume, choice of goods, and ample parking facilities for patrons.

Unless the present indications of the rubber supply available for tires changes materially, and there appears no reason to hope it may, the super-market will become less important unless the chains provide delivery service. It is difficult to predict what will happen. Much depends on the duration of the war and the extent to which we may have to adjust.

I understand in England they have either inaugurated or are planning to introduce the practice of customer being limited to the single store nearest him for his trading. However, it appears that the neighborhood store will no longer be a such a disadvantage as it has been recently in the face of the competition of the super-market.

### Eliminate Duplicate Hauling

It may be more important for associations to cooperate in delivery of their products to retail stores. I face of the edicts of the ODT and the possible more rigid regulations as the situation grows more serious the existing duplication in delivery as well as in collection should be eliminated as far as possible, both as a war measure to save material and to reduce costs as a means of increasing returns to poultrymen. Associations should examine their sales policies and methods critically.

Some associations have already reduced the extent and character of their grading and inspection services because of the shortage of labor and higher costs. Others are now doing no candling to chains who candle their receipts. Still others are being asked to increase their candling and grading services to deliver a more standardized product. Girls here may replace many of our men candlers.

There are some definite savings to be made by a reduction in these services but it must not be overlooked that incomes in general have been at a higher level and that, in spite of higher taxes and prices, consumer demand for eggs should be particularly good. A reduction in the quality of the product through lax handling methods may lose to producers some of the advantage gained from more rigid quality requirements.

### Facing Shortages

The shortage of both cases and cartons presents selling problems that may force adjustments in present methods. Some of the associations are using orange and other boxes in which to pack their cartoned eggs for delivery to stores. Others are using the paper case for the same purpose. One association is paying four cents apiece for orange crates, which to them effects a real savings. One association is charging 26 cents and another association is on the point of charging for egg cases. Credit is given for the case when it is returned. If damaged badly, the credit is reduced to the extent of the damage.

One association contends that chains do not profit in the handling of apple crates. Why, they reason, should the chains get a reduction in price through the sale of the empty case? The charge, of course, increases the bookkeeping but promotes greater respect for the scarcity and value of the case. Charges for cartons may also be necessary if supplies get any scarcer. One association charges 2 cents for cartons, giving credit when returned.

The charge for the case or carton is more in the nature of a deposit than a charge, as a credit is given when the package is returned. This has already been started in other lines of distribution.

### Maintain Services

There will be some tendency for some associations to drop services that were formerly provided to members and customers. Before dropping such services, it may be well to examine both the short and long time effect of their function. For example, one association has ceased keeping a record of member receipts. Some records are necessary for income tax and other purposes. If the association is exempt from income tax, has a surplus, and is earning more than declared in patronage dividends, it may lose its exemption status unless a record for members is kept.

Another association has dropped its membership letter as a method of reducing expenses. Members need to be kept informed more than ever at a time like this and the saving may be more than offset by lowered membership morale and through less knowledge of the affairs of the association. The same applies to candling and grading as mentioned above. At the annual meeting of one association, the manager suggested that the members grade or size their own eggs instead of having the cooperative do it. The manager was amazed to find that almost to a man his members preferred to have the association do it for them, even though at a higher cost. The shortage of labor on the farms was worse than at the association plant.

### Close Cooperation Needed

It seems to me that there never was a time when cooperative managers and boards of directors should work together more closely than at the present time. No one can forecast what will happen in the future. One thing is certain. The more unified the program of the different egg and poultry associations, the better protected will be the poultrymen. Associations have been doing well. Savings, with the rising price of eggs and increased volume, have been larger. It would appear desirable for the associations to put their financial houses in order and thus make possible the flexibility of operation which can be carried out by a soundly financed organization. Conditions will change rapidly. If we are to be ready to meet these changes, we must have an informed membership and efficient organization with as little duplication of services between organizations as possible. In the final analysis, the associations were organized for the benefit of their producer members.

So, in conclusion, may I forecast that the egg and poultry cooperatives will, in all probability, be called upon to furnish more facilities and services to offset the losses in transportation and labor. They may be forced to organize their own collection routes and set up assembly points and other functions not thought of when the associations were organized.

The associations will probably grow in membership through the reduction in the present distributing agencies. Associations selling at retail will in many cases suffer a loss in this phase of their business because of reduced consumer transportation facilities.

### Demand for More Services

They will face marked changes in methods of distribution because of changes in retail store policies, with probably more emphasis on sales to widely separated store units, in contrast to the recent trend to super markets. This will require more cartoning and retail service by the associations because of the lack of these facilities by the local stores.

Both the directors and managers of the associations will need to be on the alert to meet changes as they arise and to put their associations in positions to meet not only the present crisis but the tremendous changes and readjustments that will be required in the period following the end of the war.

# *Roosting Corrals for Turkeys*

Where space is at a premium or for some reason it is necessary to protect the birds at night, the roosting corral is the natural answer to the turkey grower's problem.

The size of the corral naturally depends on the size of the flock. A corral 100 feet square will care for from 1,000 to 1,500 turkeys without undue crowding, provided the roosts are properly arranged.

If you contemplate a roosting corral, you should have ample roosting space for all the birds in the flock, even though not all of them will get on the roosts. The roosts should be located in the center of the corral, so that if there is a stampede, the fence will be as far as possible from the roosts; hence less likely to stop the birds and risk a pile-up.

Most of the roosting corrals have an 8 or 9-foot fence, strongly made and staked down at the bottom so stray rabbits or cats cannot get in to start a stampede. Perhaps the best protection for stampedes, which offer the greatest form of risk connected with a corral of this type, is to have lights at the four corners. These do not have to be powerful lights, a 40-watt electric globe is large enough; or a good lantern will do. The birds are much less nervous with the lights than if in total darkness, and at the same time the lights discourage night prowlers of all types.

The birds should be shut in the corral just before dusk and let out the first thing in the morning. Then the gates can be closed and the birds get no chance to pick over the droppings during the daytime.

A daily examination of the droppings tells the grower a great deal about the physical well-being of his flock.

—Norbest Turkey News.

AFTER purchasing a goose at a live poultry sale, a man signed a declaration that the bird was required for breeding purposes, but on the way home it "had a seizure" and was killed and prepared for the table. As a result the man was fined $20 at Birmingham Police Court.

—Modern Poultry Keeping, London, England, May 27, 1942.

THE LOCAL dog catcher went into action when a stray rooster wandered into gardens at Glen Cove, Long Island, and attacked Mrs. Maurice Cohen, causing injuries to her legs and back. Neatly sidestepping the charging rooster in the manner of a matador, the N. Y. Times relates, the dog catcher brought his net down over the rooster.

A POWERFUL waterproof glue may be made from feathers in the near future, according to a news release.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine, May, 1942.

# Frozen and Dried Eggs

## By V. T. JOHNSON

*Condensed from the Journal of the American Veterinary Medical Association*

THE history of the frozen and dried egg industry is extremely interesting because it is a comparatively new business and has grown in mushroom fashion. About 30 years ago, the H. J. Keith Company first started freezing eggs in Boston, although I believe there was one company in the Midwest that did some experimental work in the freezing of eggs prior to this time.

China started to freeze and dry eggs in a larger way than we did in this country, and for a considerable time after 1910 we imported large quantities of dried and frozen eggs from China, largely due to the cost in comparison to American products and also because of the advancement the Chinese had made in this industry.

### Egg Drying in China

Up to about 1925, practically all of the dried eggs used in this country came from China, where there are few large egg drying centers. Most of the drying is done in very small plants, of which there are hundreds in the interior. There are no large flocks of hens in China. Practically every family in the small communities has a flock of chickens comparable to the size of the family.

### Chinese Eggs Inferior

The Chinese farmer receives from 2 to 3 cents a dozen for his eggs which is a high price in comparison to the low wages workers receive in the communities where eggs are the major source of income. Generally, the eggs produced in China are smaller than the American product. It takes about 15 eggs to make 1 pound liquid in comparison to 10 eggs in this country. In China, they can not afford to give a balanced ration to the hens; they have to scratch for their feed, and as a consequence Chinese eggs have more strength and are darker in color than ours.

After the dried eggs from the hundreds of plants in the interior of China are packed, they are concentrated in various centers, such as Shanghai, Hankow, Tientsen, and other seaport cities, where they are checked for quality and color. They are then offered under brand names, such as, Chicken Brand, Bat Brand, Wilson Brand, and many others. The last couple of years, all of the Chinese dried eggs have been offered through Japanese brokers, with the result that American purchasers could not depend on the color or quality, even though the product was branded.

American Veterinary Medical Association, 600 S. Michigan Ave., Chicago, Ill.
(Journal of the American Veterinary Medical Association)

The importation of dried and frozen eggs has been quite a factor on this market, and various increasing tariffs have been put on Chinese products to make the price somewhat comparable with American products. The duty on Chinese products is 10 cents a dozen for shell eggs, 11 cents a pound on frozen eggs and 27 cents a pound on dried eggs. Even with these duties, in a great many years the Chinese products could still come into this country and undersell our American market.

### How the Industry Grew

In 1910, there were about 600,000 pounds of frozen eggs packed. Ten years later there were 16 million pounds produced and in 1930, 71 million pounds were packed. In the year 1941, exclusive of the 66 million pounds purchased by "Uncle Sam" for lend-lease purposes, this country used about 300 million pounds of frozen eggs.

In the early days of frozen egg production, the product put into cans was largely eggs that were strictly of undergrade quality which could not be sold in shell form. They were packed from checks, dirties, mud-balls, leakers, bloodies, and anything that could be salvaged for edible purposes. It is an entirely different story now, because there are over 300 breakers in this country and the majority of them are packing eggs under extremely sanitary methods. There are egg breaking plants in practically every state in the Union today, but the large majority are located in the Midwest.

### Production Methods

As eggs are received at the egg-breaking plants, each case is weighed and records kept. Then, they are put into coolers, each lot being marked so they will be broken in chronological order. When the eggs come from the coolers, they are candled before going to the breakers. The eggs are kept in the coolers at 34° F. and checked for internal temperature so they will be as close to 50° F. as possible when they get to the breaker. We have found this temperature ideal to curtail bacterial development and obtain the largest yield.

The eggs are placed in buckets by the candlers and each girl at a breaking table has shell eggs, egg meat buckets, knives for breaking the eggs, egg meat cups, spoons, and breaking trays. The operator picks up three eggs in her left hand, then takes one egg from her left hand, breaking the shell across the stationery knife. The two halves of the shell are flipped into a cup. She puts the meat of four eggs into one cup.

After this operation, she smells

the egg meat and also looks to see that the eggs are of good quality. All egg breakers are tested for sense of smell and eyesight before they are employed, as there is no known method for mechanically breaking eggs and determining their quality as far as color is concerned. It is impossible in candling to detect whether the eggs have a grass color, a slight musty odor, a slight fishy odor, coal oil odor, fruity odor, or an odor that may come from the feed of the hen.

When the bucket is about half full of egg meat, the product is immediately taken to a pump and filtered twice, the second filtering going through a strainer of 1/32-inch mesh. From the strainer the product is put into churns, and, according to the type of eggs, whether whole eggs, egg whites, sugared, or plain yolk, they are given a definite stop-watch churning so that the product is smooth throughout. They are pulled from the churn into washed 30-pound containers and immediately taken to the freezer, where it takes about 72 hours at subzero temperature to thoroughly freeze them.

## Definition of Types

According to government standards, "whole eggs" are the natural egg meat as it is taken from the shell, "egg whites" are the natural separated egg white as taken from the shell, "sugared yolk" must be 43 per cent solids before 10 per cent sugar is added, "plain yolk" must b 43 per cent solids. The majority o breakers pack 45 per cent solid "plain yolk," as they are largely use by the mayonnaise and nood manufacturers.

When the eggs are put into co tainers and hauled into the freeze we prefer to pile the cans pyrami style, if space permits, as this give more air space around each can an the eggs freeze more quickly. Egg freeze from the outside in to th center of the can, and after they ar frozen there is a definite peak o egg meat on the top of the con tainer. The faster the eggs are froze the better the product, because the ice crystals are smaller, and afte defrosting there is less separation o liquids and solids.

## Sanitation is Strict

The majority of egg breakers take every precaution to see that egg breaking rooms are as clean as kitchens. All equipment, includin tables, floors, and walls, is washe every day and equipment is cleane many times during the day to hol down bacterial growth. Eggs are perishable as any product put in cans, and bacterial development fast, unless the product is handle rapidly and carefully after defrostin

Practically all good breakers toda check for bacteria, Escherichia co and various other tests are given to put out a product of the highest quality. If the product is not handled correctly when the user receives it, a great deal of the good work that the breaker has done to put fine quality into the can has been undone.

## Analysis of Product

"Whole eggs" contain about 13 per cent proteins, 12½ per cent fats, and 74 per cent moisture. "Plain egg whites" contain about 12 per cent proteins and 88 per cent moisture. "Plain egg yolks" contain about 16 per cent proteins, 29 per cent fats, and 55 per cent moisture. With the large percentage of moisture, naturally bacterial development is rapid. The fats, particularly, are a perfect medium for bacterial growth. All good plants use code numbers on every can packed so, if any trouble arises, the customer can check the day of the month and the year the eggs were packed at the plant. Eggs can be held at subzero temperatures for many years. I had occasion to check some frozen eggs 16 years old that were in excellent condition, with the exception of having a slight "eggy" odor. In plant practice work, they did a very good job.

## Bakers are Largest Users

The largest users of frozen eggs are the bakers. They use about 65 per cent of the total production. The remaining 35 per cent is used by the mayonnaise manufacturers, noodle manufacturers, candy people, sausage manufacturers, and, in many instances, state institutions. The CCC camps have purchased frozen eggs for scrambling purposes.

## Several Types Packed

There are many types of frozen eggs packed by the industry, namely, "whole eggs," which are eggs as they come from the shell; "egg whites," which are the entire white clipped as closely as possible from the eggs when they are broken; "sugared yolks," which are the yolks from eggs, containing 10 per cent sugar; "high color yolks," which are eggs separated for yolk color and largely used by the noodle manufacturers; "mixed eggs," which are the same as "whole eggs;" "fresh broken stock," which are eggs broken the same day they are delivered to the baker; "salted yolks," a patented product containing 7 to 10 per cent salt, used entirely by the mayonnaise people; "glycerine eggs," also a patented product containing 3 to 7 per cent glycerine—the glycerine is added for smoothness and to enhance the keeping qualities of the baked goods; "nulomoline eggs," which have invert sugar added to give smoothness and better keeping qualities to the finished product. Also, some manufacturers require "Kosher eggs," which are packed under the Jewish ritual. The specification of the Kosher egg is that the plant must be sanitary and that only hen eggs be used – no duck eggs, mud-balls, leakers or eggs of questionable quality to be included. Also, there are certain special brand types of eggs known as Voltex, Super-Tex, Kirtex, etc.

## Dried Egg Production

All of the processes that have been commercially successful in the manufacture of dried egg products are based on the principle of removing the water by evaporation in the presence of heat. The methods which have been used can be classified as spray-drying, pan-drying, drum-drying, belt-drying, and vacuum-drying. Many of the methods are patented processes, but the principles of all are the same. The spray-drying method has been used for a number of years to remove moisture from all types of products. There are several companies manufacturing spray driers that do excellent jobs.

The principle of spray-drying is that of reducing the liquid egg product to an exceedingly fine spray, or mist, in the presence of heated air. The liquid egg is forced by powerful pumps through fine nozzles under pressure of 1,500 to 3,000 pound per square inch into a high ceilinged conical chamber, which is kept at a temperature of about 160 to 220° F. The air in the drying chamber is brought in through a filter which removes dust and impurities and is circulated rapidly by a blower, thus making a cyclonic current of hot air. This heated air, mixing with the atomized liquid egg diffused through the chamber, results in an almost instantaneous drying of the liquid product as it is sprayed from the nozzle or nozzles, the dried product falling down the steeply sloping sides of the chamber in the form of a flour-like powder.

## Loss Eliminated

In many instances, the air which enters at the side of the top of the drying chamber escapes through the center of the top into a second chamber or dust collector. Loss of egg dust with the escaping airs is thus entirely prevented, as it is collected at the bottom of this auxiliary chamber. Some types of spray driers are self-cleaning, having a long blade or series of chain links which revolve in the cylinder and remove any particles of egg from the side walls. In other cases, it is necessary to stop the drier a couple of times a day and thoroughly clean the machinery to prevent the egg powder from becoming tainted.

The dried powder as it emerges from the discharge end of the drying chamber has a temperature of about 110° F. and may show a tendency to cling together in lumps. In many instances, a rotary spiral conveyor is used to obtain a cool, uniform product. At the end of the spiral conveyor, the dried product is usually emitted into a shaker, from which it falls into a barrel. In some of the drying plants, a conveyor is not used but the dried product falls from the heating chamber through a sifter into a large, shallow tray, where it is stirred before being placed into barrels.

Practically all egg drying plants have innovations of their own and now that we have about 75 driers in this country in comparison to 17 a year ago, many new developments in equipment which improve the quality are being found. In recent years, the spray method has been used almost exclusively for drying "whole eggs" and "yolks." To my knowledge, there is only one pan or belt method drier in this country and this is employed for "flake whole eggs," used mostly by the baker. Many of the egg drying plants now in operation are converted milk-drying plants.

## 3,000 Per Cent Increase

The production of "dried yolks" in this country prior to the war was normally about 10 million pounds per year. Practically no "dried whole eggs" were packed, because of demand. Production has stepped up in the past year from a normal production of 10 million pounds to a capacity now of over 300 million pounds per year. Just as an example, the normal consumption of liquid eggs is roughly 300 million pounds, so, to make 300 million pounds of dried eggs, we must break over a billion pounds of eggs, which is equivalent to 10 billion eggs or about 30 million cases.

The U. S. Department of Agriculture set up a program two years ago for an increased population of hens in the country. The provision was certainly well founded, because production of eggs for 1942 will be about 30 per cent greater than a year ago, or a production of about 50 billion eggs in comparison to a normal production of 35 billion. Indications are that production in 1943 should be about 18 per cent greater than that of this year. We should, therefore, have ample eggs to take care of domestic requirements, our army and navy, and for lend-lease purposes. I believe the frozen and dried egg industry, due to our close association with the Department of Agriculture in Washington, did an outstanding job in a short period of 12 months in stepping production up to its present level. To increase production of dried eggs from 10 million pounds to 300 million pounds yearly certainly denotes cooperation by the industry.

## Analysis of Dried Eggs

The average analysis (expressed in per cent) of commercial, good quality dried egg products is for "dried whole eggs," moisture, 5.5, fat, 41.5, protein, 48.5, acid of ether extract, 1.5 to 2, and bacteria, total plate count, less than 100,000 per gram. "Dried yolks," moisture, approximately 4.5, fat, 58, protein, 31, acid, 1.5 to 2, and bacteria less than 100,000 per gram.

In the two types of dried albumen, the fermented has a moisture of 10 to 18 per cent, a protein of 67 to 75 per cent, and the bacteria usually runs very high because the product has been fermented prior to drying. If the work being done on the drying of fresh whites can be developed satisfactorily, they should have a moisture of 5 per cent, a protein of 74 to 82 per cent, and less than 10,000 bacteria per gram. Due to the very low moisture in the "dried yolks" and "dried whole eggs," the bacteria in the eggs, when the barrel is originally filled, become very much less as the product is stored. "Dried eggs" are normally free from molds, yeast, and pathogenic bacteria. No case of food poisoning due to the use of dried eggs has been reported in this country. The color of "dried yolks" and "whole eggs" should be bright and have a good odor and a smooth texture.

### Converting Dried Eggs to Liquid

In the conversion of "dried eggs" back to liquid, one can figure that it takes 10 eggs to make 1 pound of liquid. In the converting of dried whole eggs to liquid form, one would take 1 pound of dried whole eggs to 2.6 pound of water. For dried yolks, one would use 1.25 pound of water to 1 pound of dried yolks, and to 1 pound of albumen one would add 6.3 pound of water. To make whole eggs from albumen and yolks, one would take 1 pound albumen and 3 pound yolks, and add the correct amount of water.

There are many users of dried whole eggs and yolks. They are used by the baker, and practically all of the prepared cake, biscuit, and custard mixes have dried eggs in them. Bakers and manufacturers of ice cream, noodles, mayonnais, prepared ice cream powders, pac age custard mixes, and animal fee use dried whole eggs and yolks.

### Variety of Uses

It is surprising to know the man uses there are for egg whites or albumen. They are used in baking powder, candies, meringue or whipping powders, sizing of paper products, dyeing and sizing of printed silks, rayons and cotton materials glazing of leather products and furs body pigments for special varnishes gluing of cork on bottle and ja caps, adhesive for gold leaf, emuls fying pharmaceutical preparation clarifying beer and wine, mars mallow in bakeries and candy fa tories, lithographing and phot engraving, emulsifying agent i alum, and tanning of light leather Therefore, one can see the wide ex panse of the frozen and dried egg industry. If we hope to keep all of our plants operating after the present demand is over, we shall all have to find new uses for these egg products.

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# *WAR AND THE POULTRY RAISER*

### Southern Egg Buying Continued Through August

The USDA has announced that Southern egg buying will continue through July and August. From March 18 to June 30, the Agricultural Marketing Administration bought 29,000 cases of shell eggs in the South.

### Government Poultry Purchases Scheduled to Start in August

The Agricultural Marketing Administration announced on June 22 that it would buy about 7,000,000 pounds of canned poultry for lend-lease, beginning in August. From October 1, 1941, to June 30, 1942, the AMA bought 6,915,604 pounds of canned poultry.

### Government Buys Dried Meat

The USDA announced on July 1 that tests on dehydrated beef have been satisfactory and that requests for offers to sell the product have been made to processors. Dehydrated pork is being studied, with preliminary results encouraging, but no mention is made of any such work being contemplated with poultry. Should poultry drying be undertaken and prove successful, important new markets for poultry meat might be uncovered.

### Egg Case Shortage Eased

Increasing acceptance of 30-dozen corrugated cardboard egg cases, improved conservation methods at Army camps, removal of shell eggs from storage, and declining egg production have combined to ease the shortage of egg cases in recent weeks.

### Egg Case Dealers Licensed

All persons (except cooperatives) who sell used egg cases and used component parts have been licensed, as a condition of selling, by the OPA. Licenses may be revoked for infractions of egg case price ceiling regulations.

In recent weeks there has been evidence that OPA investigators are in the field checking up on price violators. In response to these investigations, increased supplies of cases, or both, the price of cases has declined and, in many instances, has gone down to ceiling levels.

### Truck Regulations Modified

The definition of a local delivery area under Office of Defense Transportation regulations No. 5 and 6 has been modified, and now includes an area within a 25-mile radius beyond the corporate limits of the municipality in which the delivery originates.

The back-haul provisions, originally scheduled to go into effect on June 1, have been twice postponed, and, at press time, were to go into effect on July 15. There is a possibility that the back-haul may be eliminated and a blanket reduction of, perhaps, 33 1/3 per cent, substituted.

### Food Requirements Committee Headed by Secretary Wickard

A Foods Requirements Committee, with control over production and allocation of all civilian and military food supplies, has been established by War Production Board Chairman Donald M. Nelson. Head of the new group is Claude R. Wickard, secretary of agriculture.

The committee will determine civilian, military, and foreign food requirements and has authority to increase or decrease domestic production of food as well as to limit or step up the importation of foods and agricultural materials from which foods are derived.

### Millfeed Ceilings Set

Price ceilings for wheat millfeeds were announced on June 30, to go into effect on July 4. The four basing points and the maximum price are as follows: Kansas City, $36.5 per ton; Minneapolis, $37.75; Seattle $36.50; and Portland, $36.50.

All these are millers' prices d livered at the points named in ca load lots. Maximum prices for sal other than at retail, sacked, in les than carload lots, is $2.00 per to over the above prices. In mixed ca shipments, $1.00 per ton may b added. Retailers may add $4.00 pe ton to the maximum prices for ca load shipments.

### Meat Scrap, Tankage Prices Under Zone System

Ceiling prices for meat scrap and digester tankage have been placed under a zone pricing system, whereby prices within each of the three zones are uniform. The former ceilings were set by the "freeze" technique, whereby sellers' prices were based on January 17, 1942, levels. The new system is aimed at eliminating dislocation of supplies, which were moving to sellers with th most advantageous ceilings.

### Wire-Bound Poultry Boxes Subject to Price Ceilings

Wire-bound dressed poultry boxe have been included under Maximum Price Regulation No. 160, Seasonal Wooden Agricultural Containers.

### War Damage Insurance

Blanket war coverage of private property by the War Damage Corporation expired on July 1 and war damage insurance is now being handled by local fire insurance agents.

### Don't Need Priorities for Most Farm Goods

Farmers need no priorities to buy nails, ordinary sizes of pipe, hardware, barn equipment, poultry equipment, nor metal roofing for repair and maintenance. Priorities are given the manufacturers, so farmers can buy the goods without red tape, so long as local dealers can obtain them.

### Civilian Use of Feathers Curbed

Under Amendment No. 2 to Conservation Order M-102, the War Production Board requires that all goose and duck body feathers up to 4 inches in length must be reserved for military use. Previously, duck feathers over 3 inches long could be used for civilian purposes.

### OPA Clarifies Meaning of "Eggs and Poultry" Under Regulation

Eggs and poultry are exempt from the general maximum price regulation, but in order to clarify the meaning of "eggs and poultry," the OPA on June 17 issued an interpretation in which the following items were exempt from the regulation: Shell eggs, dried whole eggs, dried egg yolk, dried egg albumen and frozen yolk, with or without sugar, salt, or an emulsifying agent; tanner yolk, tanner whole egg, live poultry, full drawn chicken, turkey, etc.; other dressed poultry, disjoined chicken, turkey, etc.; split chicken, cooked whole chicken, frozen chicken, turkey, etc.; smoked chicken, turkey, etc., New York dressed chicken.

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❡ A WAY to stop a bully that fights other roosters in a flock comes from Mrs. H. W. Crain, Shannon county, Missouri. She removes spurs from such a fighter, clips his beak tip, cuts his tail back to 3 or 4 inches, and the bullying stops. Apparently, the offender not only is disarmed but also has his ego deflated.
—Capper's Farmer, July, 1942.

❡ AFTER an absence of almost four years, a homing pigeon belonging to Fordyce Bros., Whitburn, returned to the loft. Not only did the bird find the loft, but it went straight to its own nest-box and started to contest possession with the pigeons occupying it.
—Modern Poultry Keeping, London, England, May 27, 1942.

# Poultry Meat Over the Counter

### By RUSSELL CORT

*Condensed from Northeastern Poultryman*

WHEN the question came up as to how more year-round poultry sales could be developed, we decided to ask a few opinions from the fellows who had done it—the retailers.

As a starter, we asked a group of wholesalers, chosen at random, to give us the names of retail customers who were doing an outstanding job in selling poultry, week in and week out. We emphasized the fact that we didn't care what the dollar or pound volume might be, what we were interested in were the retailers who were selling poultry consistently week after week. We were supplied with a list including 21 independents, three multi-units, and three chains (and 13 chain units).

## Area Carefully Selected

So far as geography is concerned, we felt that we had a very good distribution within the limits of the Boston area. Part of the intent of the study was to determine, if possible, any relationship between locality and ability to sell poultry consistently.

The neighborhoods studied gave every visual evidence of representing a range of economic, social, and religious backgrounds. I think it is safe to say that the study presents a rather complete cross-section of the area's variations in most of the fundamental considerations.

## Retailers were Cooperative

When we started out on our retailer visits, we had anticipated that at least a third of the retailers would turn us down. After all, our questionnaire was quite lengthy. It had to be to give us the information we wanted. It meant that we would have to bother each retailer to the extent of a minimum of 20 to 25 minutes, and we were asking a lot of quite personal questions.

But the retailer's interest in his poultry business is so keen that not a one of them turned us down and in many places we spent up to an hour and a half discussing not only the questionnaire, but many other phases of poultry retailing as well. In fact, many of the retailers voluntarily invited us to come back if we wanted more information. We feel that this attitude expresses as nothing else could the vital regard which retailers have for this portion of their business and that this retail interest should be of great importance to the producers of poultry.

New England Poultryman Publishing Co., 4 Park St., Boston, Mass.
(Northeastern Poultryman, June 15, 1942)

We were trying to get some indication of the importance of poultry to the total sales of the meat departments and to find out how the various kinds of poultry stood in relation to each other. Thus, the word "poultry" included chickens, turkeys, ducks, geese, and others (including squab and game birds).

To get the information on chickens, we broke that classification down to get as much specific information as possible on broilers, fryers, roasters, capon, fowl, quick-frozen, cut-up, eviscerated, etc. In fact, everything except canned or cooked chicken was included.

## Meat Department is Important

Among the stores studied, the sales of the meat department ranged from 20 per cent to 100 per cent of the total store sales. I believe that an attempt to strike an average would be misleading. For instance, one chain organization said that in their combination and super-market stores the meat department accounted for 27½ per cent of total sales. Yet in the figures for a half-dozen stores, meat department sales ranged from 24 per cent to 34 per cent. The experience of this chain organization was confirmed by the data obtained from another chain group. Among the stores supplying definite information on this point, the breakdown is as shown below.

| Meat Department of Total Sales | No. Stores Reporting |
|---|---|
| 20 to 25 per cent | 2 |
| 26 to 30 per cent | 4 |
| 31 to 35 per cent | 5 |
| 36 to 40 per cent | 4 |
| 41 to 50 per cent | 4 |
| 51 to 75 per cent | 3 |
| Over 75 per cent | 2 |

It was found that poultry accounted for from 5 to 40 per cent of the meat department sales. Again, I feel that an attempt to strike an average would be misleading, as may be judged by the information from a chain organization which shows that for the chain as a whole poultry sales represent 13 per cent of meat sales. Yet for the selected stores studied, poultry sales accounted for 16 to 18 per cent of the meat department total. Among the units of another chain, the variation was found to be from 5 to 25 per cent. The following break down will give you some idea of how the stores divided on this point.

| % Poultry of Meat Department Sales | No. Stores Reporting |
|---|---|
| 5 to 10 | 5 |
| 11 to 15 | 3 |
| 16 to 20 | 14 |
| 21 to 30 | 5 |
| Over 31 | 3 |

"Our poultry business," said an important retailer during the study, "is mostly in chickens and turkeys, with the emphasis on chickens for year-around business." And that just about tells the general story, for among the stores giving information on the question, chickens accounted for 60 per cent to 90 per cent of all poultry sales. The breakdown shows:

| % Chickens of Poultry Sales | No. Stores Reporting |
|---|---|
| 60 to 70 | 5 |
| 71 to 80 | 5 |
| 81 to 90 | 7 |

Of course, you must bear in mind that by chickens we mean fowl, fryers, broilers, roasters, capon, quick-frozen, eviscerated, and what not. Turkeys were the next most important birds in poultry sales and accounted for 5 to 30 per cent of total poultry selling. The balance was made up of ducks, geese, squab, game birds, and so forth.

More retailers gave us more information on their fowl sales than was true for any other types of chickens. The reasons are interesting for they reflect the influence consumers can exert. For example, here are two or three reasons expressed by retailers:

> ". . . because it has so many uses from the consumer's point of view."
> "Frequently recommended by doctors in case of sickness."
> "Can make fine broths and soups for sick people and still have meat for others."
> "Many customers feel that they get the most for their money from fowl."

Is it any wonder, then, that fowl would be found to account for 23 to 66 2/3 per cent of all chicken sales? Our table on this point gives the following detail.

| % Fowl of Total Chicken Sales | No. Stores Reporting |
|---|---|
| 23 to 30 | 2 |
| 31 to 40 | 5 |
| 41 to 50 | 2 |
| 51 to 66 2/3 | 5 |

Broilers and fryers accounted for 15 per cent to 66 2/3 per cent of chicken sales. The high figure was reported by a fine store serving a Jewish clientele (80 per cent of trade) in the upper-middle and higher income brackets. Roasters ranged from 10 to 80 per cent. The high figure was given by a medium-sized retailer located in a small town outside of Boston. The clientele could be defined as in moderate circumstances.

## Chickens Sold for Week-Ends

You hardly would be surprised to be told that most chickens seem to be eaten on Sundays. That almost is traditional in many of our homes and you and I are no different than our neighbors. Friday and Saturday are the big selling days, with sales divided about equally between them.

Of course, there would have to be variations from such a general statement. One retailer, for instance, located in a neighborhood where his trade largely is Catholic, sells very little meat of any kind on Friday and does 50 per cent of his poultry business on Saturday alone.

Another store, selling only meat, sells 40 per cent of its chickens on Thursday and 30 per cent on Saturday. This retailer is located in an area with a large Jewish population. Another retailer serving a preponderantly Jewish clientele in the upper-middle and higher income brackets reports that 15 per cent of his chicken sales were made on Monday. This, he felt, was due to the large number of his customers who were away from home nearly every week end and needed something for Monday dinner. He was the same fellow who said that broilers and fryers accounted for two-thirds of all chicken sales. Friday and Saturday sales ranged from 37½ to 95 per cent of the weekly total. Here's the way the stores divided on this point:

| % of Weekly Sales on Friday and Saturday | No. Stores Reporting |
|---|---|
| 37½ to 50 | 9 |
| 51 to 60 | 2 |
| 61 to 75 | 9 |
| Over 75 | 11 |

## Retailers Like to Sell Poultry

Poultry producers may take comfort in the fact that they are supplying a product the retailer likes to sell. There is no hurdle to overcome in getting the retailer to push the product. For example, of the 33 who gave information on the question "Is Poultry a Profitable Item?" 30 of them answered in the affirmative. Here are a few quotes which are indicative.

> "Good profit and a known profit."
> "Good profit compared to other meats."
> "One of the good items."
> "Yes, you at least know what your profit is and can be sure of it."

And that isn't the whole story as to why retailers like to sell poultry. Just look over the following quotations.

> "A good item. There's no shrinkage and you know what you're making."
> "Good poultry is the best way of holding customers."
> "Best related item seller."
> "A volume seller. Each sale over a dollar, and takes very little more paper and effort than cheaper meats."
> "We have a good turn-over and get our mark-up. Besides, we seem to sell more seasonings, fruits, and vegetables."
> "It is our opinion that good poultry is not only a profitable item in itself, but that it is an excellent traffic and good will builder."
> "A good looking item, makes an attractive package."
> "Less complaints. You know what your profit is. You get a good unit sale and have no end cuts to unload."
> "Can handle on a day-to-day basis, don't have to provide much refrigerator space."

## Maintain Quality Standards

People like to eat chicken and retailers like to sell chicken, yet almost without exception the opinion was expressed that more people would eat more chicken oftener "if." If what? Well, for one thing better maintained quality standards. One large retailer said:

> "Nearly everyone, we believe, will recognize the necessity for maintaining quality standards rigidly in any attempt to influence the general public. It doesn't make much difference whether the products are automobiles, radios, hats, or poultry—the standards must be consistent. For example, the top quality of poultry should not be dependent on

> the quality available at the moment, but on hard and fast specifications which will apply not only to today's poultry, but to next week's and next month's as well."

Dressing and handling came in for adverse comments, too. Why? Because retailers have found that the eye-appeal of chickens is one of the strongest factors among consumers. Birds that have been poorly dressed, birds with improperly cleaned crops, birds that have been carelessly plucked, birds that have been tossed around and have become bruised and blemished just don't have that important "eye-appeal." Let me quote just a few of the retailer comments.

> "First, perhaps, is the question of better handling by everyone along the line so that the retailer can show the consumer a fine-appearing, unblemished, unbruised, well-plucked bird. The eye-appeal of poultry is of great importance with housewives."
>
> ". . . picking is often poor, we have to do a lot of it ourselves. The eye-appeal is important in selling poultry."
>
> ". . . careful handling would give us more unbruised and unblemished birds."

Should poultry producers worry very much about these complaints? I think so, because unless a product meets the full requirements of the consumer, a limitation has been placed on the extent of its use. Let me close with one more quotation to illustrate this point.

> "During the past few years the proportion of native chickens handled has grown tremendously and seemingly will be limited only by the ability of producers to supply the market with the kind of birds consumers want."

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## *Bath for Broilers*

A visitor at his farm in Kosciusko county, Ind., was being shown a bunch of summer broilers Michael Reuter was developing. Reuter picked up a hose, turned a faucet, and began spraying the flock and the litter in the house. They fled at first, but stood and seemed to enjoy it after they were wet. "I spray them daily," he said. "It lays the dust and freshens up the house in hot weather, and the chicks seem to do better."

—Capper's Farmer, Copyright July, 1942.

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❡❡ RETURNING to his home some days after he had been bombed out, a Norwich doctor found his one remaining hen contentedly sitting on half-a-dozen eggs she had laid on the sofa in his drawing-room while he had been away.

—Modern Poultry Keeping, London, England, May 27, 1942.

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# Fowl Paralysis Whipped by Relaxing Sanitary Precautions

***Condensed from Capper's Farmer***

FOWL or range paralysis took 40 per cent of B. E. Crider's pullets 10 years ago. Today the disease is no longer a serious profit-limiting factor in his flock. Only when he introduces new stock, every three or four years, does the trouble recur, and then the toll never exceeds 3 per cent.

His White Leghorns were not coddled to effect that control. Rather, they were toughened to resist the disease. Fewer instead of more sanitary precautions were applied in their development. For instance, brooder houses on the Auglaize county, Ohio, farm have not been changed to "clean ground" in the 10 years; there are no disinfectant solutions for attendants to step into before entering houses; and no ban against a visitor who may want to go into the lots or pens.

### Sanitation Didn't Pay

"My first reaction when the disease struck was to employ more rigid sanitation," said Mr. Crider. "Accordingly, the next batch of chicks was raised on wire. They were subjected to every precautionary measure in the books, some practical and some decidedly impractical. Up to housing time, I thought I had the trouble whipped. Then, when those birds, which had never had anything wrong with them, which had literally been made to live, were put in the old quarters, they got everything, including fowl paralysis.

"In running away from trouble, I had run right into it. I lost not only the prospective profit from pullets ready to lay but all I had invested in developing them. Besides, my poultry plant would go through the winter at 60 instead of near 100 per cent capacity, which would affect income accordingly.

### Exposed Chicks to Weather

"Next season I decided that if birds were going to die, the sooner they did it the better. A dead chick is cheaper than a dead pullet. So that batch was brooded downright carelessly. They were a week in the battery, then a week under an electric hover in an otherwise cool brooder house, then they had access to a wire pen outside the heated house. I swept the snow away so they would have direct contact with the ground. After two weeks the wire was taken down and they were given freedom to range as far as they liked. Always there was warmth in

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(Capper's Farmer, June, 1942)

the house if they cared to seek it. Much to my surprise, losses were only 2 per cent up to 12 weeks old. And at housing age, for the first time since the disease infected the premises, paralysis losses were negligible. They continued encouragingly low.

"In reflecting upon that experience, two possible explanations occurred to me. In the first place, those chicks had been hatched from older hens; in the second, subjected to all the infection that the contaminated ground and surroundings harbored, they evidently had developed a certain immunity or resistance to disease.

### Hatches from Old Hens

"Since then, I have selected hatching eggs from the older hens. There is no better evidence of vitality and resistance to disease and parasites, than long life. So the older a hen is, the greater the proof that she can take all that hazards have to offer and still survive.

"I have bred into the flock, if not a resistance, then certainly a tolerance of fowl paralysis. That is proved, first, by the experience of farmer poultrymen who have bought the chicks and, second, by my own experience when I deem it necessary to introduce new blood. Every three or four years I buy new stock.

"Pullets of that first generation, even though they are reared as those of my own breeding, will show perhaps 3 per cent paralysis. That indicates the tolerance developed in the old blood has been dissipated or reduced by the new. Obviously, we cull out the susceptible pullets."

In further support of his theory that immunity can be bred into or acquired by poultry, he reminds that nobody ever saw wild birds sitting around in the fence corners with swollen eyes, lame wings, and weak knees. Nature eliminates those which are susceptible and their strain is not propagated.

### Take a Tip from Nature

"I wonder to what lengths the poultry industry should go in protecting birds against disease," he said. "If we are successful, we may be propagating a weaker race. If we are not successful, if disease germs may be wind or dust or water-borne, which seems probable, and the susceptible chickens fall prey to them anyway, then isn't it better that they pass out of the picture sooner rather than later? Maybe that's heresy, but I believe there's a tip for us in nature's way."

No specific for range paralysis, which scientists prefer to call fowl leukosis, has been developed. The only remedy has been to "clean up," practice strict sanitation. When that has failed, poultrymen have been advised to make a complete change of location or get out of business for at least two years.

A man in western Ohio, seeking to add new blood through cockerels, developed them in a woods at the back of his farm where no chickens had ranged within the memory of man. A gratifying percentage survived. But when they were brought to the farmstead for mating with pullets raised on old ground, 50 per cent of the cockerels went out with paralysis, while but few of the pullets were affected.

Because his procedure in combating paralysis is at variance with accepted conception of disease control, Mr. Crider does not urge his method upon anybody. But if one should desire to try it, he recommends the complete plan:

1–Get chicks hatched from old hens, preferably the survivors from a flock that has been attacked by paralysis. Desirable sires would be roosters whose age had demonstrated their resistance, but because old roosters are of low fertility it is necessary to breed the old hens to young cocks. Mr. Crider uses individual pedigreed cockerels out of his oldest, most resistant hens.

2–Raise the chicks on ground where the old flock ranged.

3–Watch carefully for coccidiosis and at the first signs apply the known remedy – a flushing mash. The one used by Mr. Crider consists of 100 pounds dried whey, 100 pounds finely ground yellow corn, 100 pounds finely ground bran. Whey is preferred because it is high in milk sugar and low in protein. The bran is reground through a hammer mill to suspend the whey. The mixture is put into mash hoppers and fed two full days. Primary precaution is to supply an abundance of water. The birds on this diet will consume two or three times as much as normal. Clean up thoroughly after the treatment.

4–Vaccinate for fowl pox at 10 to 12 weeks old. They can take it at that age with the least damage.

5–Capsule the pullets for worms once a month during summer, beginning at 10 to 12 weeks old. This is necessary because the old ground will be infested with both round and tapeworms. The fourth or last worming is applied at housing time.

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❦ DRIED eggs will be packed in 5-ounce paper packages, resembling those used for breakfast food, by two Chicago candy manufacturers, says the American Egg and Poultry Review, May, 1942.

❦ A SEATTLE woman has demanded, in lieu of alimony, one chicken a week from her divorced poultryman husband.
—Lorraine L. Engel, U. S. Egg and Poultry Magazine, May, 1942.

# A Tested Coccidiosis Treatment

By L. A. TISCHHAUSER
Garnavillo, Iowa

*Condensed from the North American Veterinarian*

THE treatment and prevention of coccidiosis through the use of medicinal agents is of special interest to poultry raisers. Again and again we hear someone give a lecture on this disease, or we read an article that deals with this disease. Everything about the disease is well presented until treatment is mentioned. Then so often we hear it stated that, of course, there is no known treatment of any particular value except sanitation.

In our practice my associate, Dr. Brandt, and myself do not bother the client about the clean ground when he comes to us with his coccidiosis troubles. We aim to give him treatment that gets results. And then, of course, he is instructed that, whenever possible in the future, he should start his chicks on clean ground.

## Sanitation Ineffective

Do not be deceived or deceive anyone else into thinking that sanitation will end trouble with coccidiosis. Every now and then we have complaints from flock-owners that trouble has developed even though brooder houses had had a thorough cleaning with hot lye solutions and the chicks were started on clean ground. In fact, it occurs from time to time that coccidiosis is seen in flocks in new houses, with all new equipment and on clean ground.

Our treatment is as follows:

| | |
|---|---|
| Commercial sulfur | 200 pounds |
| Betanaphthol | 100 pounds |

## How to Treat

Grind or roll until there are no lumps, then mix thoroughly. Of this mixture, give a heaping teaspoonful to every 100 chicks, well mixed in enough dry mash for a one-day supply. Beginning when the chicks are two weeks of age, give this treatment daily for six days, then skip six days, and continue this schedule until the chicks are 16 weeks of age. This will get you by without trouble in the majority of cases. If signs of coccidiosis do appear, the dose is doubled for several days.

We also use 2 to 4 tablespoonful of stock molasses to every gallon of drinking water from the time the chicks are hatched until they are 16 weeks old. Just how molasses benefits chicks with coccidiosis we do not know. However, we seem to get real benefit from its use.

(The North American Veterinarian, May, 1942)

If the disease has already developed when the owner calls for treatment, we use exactly the same plan. Wherever necessary, we use 2 heaping teaspoonfuls of the sulfur-betanaphthol mixture to every 100 chicks.

When we treat coccidiosis in old hens, we use from 1 to 2 heaping tablespoonfuls of this same mixture to every 100 hens.

It has been stated that sulfur will produce rickets in chicks in some cases when fed regularly to prevent coccidiosis. This we have failed to observe in treating many hundred flocks in the past two or three years.

There is a lot of satisfaction in being able to give clients a really practical and effective treatment in as devastating a disease as coccidiosis.

## Case Report

The following case report is typical of hundreds of cases seen in the field.

A flock of 700 White Leghorns began showing symptoms of coccidiosis. After the birds had been sick for several days, during which period there had been a bloody diarrhea and gradually mounting losses, the owner came in and gave us the story. That morning, 50 dead chicks had been picked up. By that time the flock had been reduced to about 400. We advised the owner to destroy all birds that would not eat and to put the balance of the flock on the treatment previously prescribed. The owner reported almost miraculous results from that time on.

Several weeks later, 500 chicks were purchased and put into the same infected pens, against our expressed advice. These chicks were at once put on the sulfur-betanaphthol treatment, being fed the powder five to seven days, then skipping three to five days, and repeating this procedure until the chicks were 16 weeks old. There was a total loss of only 25 chicks and some of these died from causes other than coccidiosis.

Symptoms of coccidiosis were apparent a number of times. On such occasions, the dosage was doubled immediately and, in a day or two, all seemed normal again. Molasses was fed in the water from the beginning.

## Treatment Thoroughly Tested

Now, we know that one swallow does not make a summer, nor does one case prove anything, because we have been in practice nearly a quarter of a century. But when, over a period of years, you can get similar results in hundreds of flocks, then it behooves us not to be like the ostrich, which hides its head in the sands and refuses to recognize results.

Do not expect results if the chicks

no longer eat. Only a fool could expect results in such cases. It is better to destroy such chicks.

Do not be afraid of sulfur rickets from the dosages we advise. Dr. R. M. Cocking, of Monona, Iowa, and Dr. Brandt and myself, here in Garnavillo, have treated a good many hundred of thousands of chicks and have never yet seen a case of sulfur rickets following the dosages here recommended.

## *Slide Rule Speeds Up Figuring*

Increasingly, poultrymen seem to be accepting the old maxim that "We don't really know anything until we can express it in figures"—the feed consumption per bird, average egg production, pounds of feed per pound gain, per cent hatchability, feed cost per dozen eggs, per cent mortality, average weight at 12 weeks, eggs per bag of feed, to mention just a few common measures. Everywhere I go, I'm shown yards of calculations on poultry house walls, the backs of feed tags, in "little black books," and even on restaurant tablecloths.

Several (yes, many) years ago I was told that a certain teacher never flunked a student who bought and learned to use a slide rule. I did, he didn't. The slide rule only cost me $2.00, and, after the first bewilderment, it proved as easy to read as a thermometer. I still have it, though it's almost worn out. Besides saving countless hours of time and reams of paper, it has enabled me to make quick calculations that I wouldn't have found time to make by the usual tedious paper-and-pencil method.

Even the 25 cent variety-store slide rule that I keep on the writing table at home is plenty accurate enough for simple calculations. Just buy one, get the local high school science teacher or some engineer friend to show you the hang of it, and you'll find it an almost daily help in trying to figure out which end is up (financially)—and why.

—Stephen M. Walford, Poultry Tribune May, 1942.

◀◀ CHEMURGISTS have developed plastics made from chicken feathers and turned them into tumblers and thread, with possibilities that chicken feathers may eventually wind up in most any of the thousands of forms now taken by plastics.

◀◀ CHICKENS are considered domestic animals by Wisconsin's Attorney General John Martin in interpreting a state law which permits the shooting of a dog for "killing, wounding, or worrying" domestic animals.

# POULTRY RESEARCH

### Respiratory-Nervous Disorder

A respiratory-nervous disorder, caused by a filterable virus, has been studied by Donald E. Stover of the California State Department of Agriculture, and reported upon in the American Journal of Veterinary Research, April, 1942.

The disease has become common in California, and poultrymen regard it as the most serious of those affecting growing chickens. A respiratory disorder similar to infectious bronchitis and nervous symptoms are both manifestations of the same disease, says Stover. This is distinct from infectious bronchitis, however.

In artificially infected chickens, the incubation period was found to vary between two and six days, with an average of four days. The disease lasts longer than infectious bronchitis, with individual birds showing respiratory symptoms for three to four weeks and the flock as a whole for five or six weeks. Most outbreaks occur when the birds are from three to 10 weeks of age, but a few outbreaks were found in birds over a year old.

First symptoms noted are usually droopiness, occasional sneezing or shaking of the head, and husky voice. A few birds gasp for breath. Breathing is apt to become labored as the disease progresses, and at that time birds often become paralyzed in the legs or exhibit other nervous symptoms. At the height of an outbreak, body temperatures range between subnormal and 111° F. Death resulting from an acute attack is usually preceded by a period of coma lasting a few hours, during which body temperatures drop below 90°.

The nervous symptoms are of three general types—muscular incoordination involving particularly the neck and leg muscles, constant tremor of the body, and paralysis of the legs. In most flocks, paralysis of the legs is the most common symptoms.

Newly infected chicks usually show a cloudiness of the air sacs. As the disease progresses, the air sac membranes become filled with fluid, yellowish gray, and almost opaque. Later on a fluid may be found in the body cavity and lungs may become congested.

The disorder was readily transmitted to chicks by injecting material made by mixing ground-up air sac membranes in salt solution Young ducks, pigeons, turkeys, and rabbits did not get the disease when inoculated.

Birds immune to infectious bronchitis were susceptible to the respiratory-nervous disorder. The same was true for birds immune to laryngotracheitis. Birds immune to the respiratory-nervous disorder were susceptible to both laryngotracheitis and infectious bronchitis. These tests indicate that the filterable virus responsible for the respiratory-nervous disorder is distinct from those causing infectious bronchitis and laryngotracheitis.

## Substitute for Cod Liver Oil

From Brazil comes news of the use of oil from the liver of the cacao, a Brazilian fish, as a substitute for cod liver oil. Production can be increased considerably if there is sufficient demand for the cacao livers.

—Agriculture in the Americas, May, 1942.

## Phenothiazine Medication and Blood Hemoglobin

The administration to chickens of a normal dose (0.5 gm.) of phenothiazine or two, five, or ten times the normal dose did not significantly lower the hemoglobin concentration of the blood, report E. C. McCulloch and L. G. Nicholson of Washington State College in Veterinary Medicine, June, 1942.

## Cow Urine for Coccidiosis

Neither cow urine (given in solutions ranging from 25 to 75 per cent of the liquid, replacing water), various fractions of the urine, nor urea protected chicks against lethal doses of the coccidia Eimeria tenella, report H. Fisher, C. Inkster, and J. Biely in the American Journal of Veterinary Research on tests carried out at the University of British Columbia, Vancouver.

## Sulfanilamide for Fowl Pneumonia

Sulfanilamide has been used successfully in the treatment of fowl pneumonia and some types of eye infections by D. E. Lothamer of Louisville, Ohio, says a report in Veterinary Medicine for May, 1942. In most cases, the treated birds had fully recovered within 24 hours, with no unfavorable after-effects.

## Effects of Restricted Feed Intake on Production and Body Weight

Shortages of poultry feedstuffs because of rationing in England prompted H. Temperton and F. J. Dudley, The National Institute of Poultry Husbandry, Newport, Shropshire, England, to make a study of the effects of restricted feeding on egg production, mortality and body weight. Their results are reported in the Harper Adams Utility Poultry Journal (Vol. 27, No. 4).

Pullets grown on five different rations were distributed at random in approximate equal numbers among six laying groups, 25 birds to each pen, confined to a solid floor poultry house. Two of the pens were

given unlimited access to a proprietary mash mixture to which fish meal, clover meal, and salt were added. Limestone grit was also supplied. Two more pens were limited to a mash consumption of 3.87 ounces per bird daily, while the last two pens were limited to 3.48 ounces per bird daily.

Egg production in the control group, which consumed 4.28 ounces of mash per bird daily for the six-month period, was 82.6 eggs per bird; in the group receiving 3.87 ounces of mash per bird daily, 76.3 eggs; and in the group receiving 3.48 ounces of mash per bird daily, 54.4 eggs.

Final body weight in the control group was 4.7 pounds per bird; in the 3.87-ounce group, 4.49 pounds per bird; and in the 3.48-ounce group, 4.36 pounds per bird.

Average mortality was 27 per cent. The control group stood at 36 per cent; the 3.87-ounce group, 24 per cent; and the 3.48-ounce group, 20 per cent. During the fifth and sixth months of the trial, the birds were thrown into a molt, and difficulties were experienced in obtaining satisfactory feedstuffs. Whether or not these conditions may have had anything to do with the mortality is not indicated.

## Hatching Muscovy Duck Eggs

Artificial hatching of Muscovy duck eggs has been quite difficult, but C. M. Bice, Hawaii Agricultural Experiment Station, has succeeded in obtaining hatches of 75, 80, 73, 81 and 84 per cent of the fertile eggs with all-incubator hatching, according to the Hawaii Farm and Home for May, 1942. The best previous artificial hatch at that station was 46 per cent.

A good incubator which will stand high humidity is required, Bice points out. In these tests, a forced draft incubator with a separate hatching compartment was used.

"The method requires that the temperature be kept almost steady, at an optimum of 98½ to 98¾ degrees for the first to the 31st day. From the 31st day until the eggs hatch on the 35th day, the temperature should be reduced to 98 degrees.

"The wet bulb reading from the first to 31st day must be 85 degrees; from the 31st to the hatching day, 91 degrees.

"The eggs must be sprinkled with warm water once a day to the 31st day. After the sprinkling, the humidity will go up to 94, but will go down to 85 again within an hour.

"After the 31st day, hot water is poured into the moisture pans in the hatching compartment. This will give off steam which helps to soften the shell and encourage the proper moisture within the egg. This should be done at least twice between the 31st day and hatching, and preferably each day between the 31st and 34th days inclusive.

"Eggs are turned every four hours."

### Cut Grass as Sole Food for Goslings Fails to Maintain Normal Growth

Feeding of cut grass to goslings under confinement proved unsatisfactory, according to M. M. Wright in the Harper Adams Utility Poultry Journal (Volume 27, No. 6).

Previous work at the National Institute of Poultry Husbandry has shown that goslings could make satisfactory gains in weight when they had access to a large range without the addition of other supplements.

In the tests reported by Wright, goslings 6 weeks old were placed in a concrete floored wire run and given access to fresh water and limestone grit at all times. They were given scythed grass twice a day as their sole food, but showed little interest in it. After 12 days, the test had to be abandoned because they were losing condition rapidly.

The test was repeated later with chopped grass on goslings about 8 weeks of age, but they showed no gains at the end of 10 days. They showed losses of about 1 pound each in weight in another week even though they had received as much chopped grass as they could consume.

### Premium for Large Eggs Greater than For Extras

The premium paid for large eggs over mediums was approximately twice the premium paid for extra quality over standards at three Ohio egg auctions, reports R. E. Cray of the Ohio Agricultural Experiment Station in the Ohio Bimonthly Bulletin, No. 215.

The greatest premium for large over medium eggs was paid during September, October, and November, while the largest premium paid for interior egg quality, extras over mediums, was from June 15 to October 15.

It is concluded that poultry raisers should give serious consideration to the inherited genetic make-up of their flocks from the standpoint of egg size as well as production, livability, and other factors. Pullets should be given every opportunity to grow, so that they may obtain their full genetic possibilities regarding egg size, since producers cannot expect to receive the highest prices for their products unless they give consideration to egg size as well as interior quality in their production programs.

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A STONE duck was used in Babylon as a standard of weight. On it was carved a warning—anybody who tampered with the duck, trying to falsify its weight, would be executed.

—Lorraine L. Engel, U. S. Egg and Poultry Magazine.

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# Confinement Rearing of Turkeys

## By S. W. HAMILTON

*Reprinted from Turkey World*

THE confinement system of rearing turkeys offers many advantages to small and large turkey growers, and it is a system which can be used very successfully by the poultry producer who is combining the production of turkeys and chickens on the same farm. It is now a well established fact that turkeys can be raised successfully and economically in confinement off the ground right up to the time of marketing.

At marketing time, turkeys raised in complete confinement will have full, heavy fleshing of the breast, and there also will be a somewhat heavier buildup of meat through the thighs. The meat is unusually sweet, juicy, and tender. Turkeys raised in complete confinement usually take about one hour less to cook.

Any producer who has a limited acreage or had to discontinue previous turkey production because of diseases resulting from contamination, can now develop a very profitable business by raising the turkeys in confinement.

### Start Poults in Batteries

In terms of feed cost per pound of weight gained, turkeys can be grown very economically in confinement. Many large turkey producers start their poults in brooding pens attached to rearing platforms, then transfer the birds, at 12 weeks of age, to the growing range. Poults to be raised in confinement can be started on the floor or in batteries. An increasing number of turkey producers are now starting their poults in batteries for a period of two to five weeks and then transferring them to the floor system of brooding.

### Transfer to Platforms

Poults which are started in batteries the first four to five weeks, then transferred to turkey rearing platforms or other confinement structures, will take very readily to the change of environment. Some heat under the brooder stove in the brooding pen may be necessary for the poults when they are transferred to the rearing platform from the battery, depending on the time of year and the age of the turkeys. On an average, unless the turkeys are hatched very early in the year, heat is only needed under the brooder for a period of about one month, after which time most of the turkeys

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Turkey World, June, 1942)

will prefer roosting outside on the platform all night, where they prefer to stay rather than roost inside of the brooder house.

There is less tendency for turkeys to get their hocks caught in the wire floor of the rearing platform if 1 by 4 inch mesh wire is used.

### Use Proper Hoppers

To discourage the habit of the turkeys cleaning their beaks on the feathers of other birds, stretch a 16-gauge wire along the top of each hopper. Separate hoppers should be used for the feeding of mash, grain, fitting ration, and other supplements. One 8-foot hopper is sufficient for each feed from the eighth week of age for each group of 60 to 75 birds. Practically all loss of feed can be eliminated if the hopper is 8 to 10 inches across the bottom and from 5 to 7 inches deep.

Outside hoppers, attached to the platform, should be constructed especially for that method of feeding and adjusted to the proper height as the turkeys grow, otherwise there will be a tremendous waste of feed, especially after the tenth week of age.

When the construction of the turkey platform permits, have the water troughs on the outside. This will reduce labor greatly and prevent the turkeys from walking in the water and contaminating it. One 5-foot water trough is enough for 75 turkeys from the eighth week of age until they reach maturity.

Where a series of turkey rearing platforms is being used, water should be piped to each unit to save labor. There are many excellent styles of water troughs or fountains on the market, so it would only be a matter of selecting the one most adaptable for the particular unit. When the turkeys are 9 to 10 weeks of age, provide 5 to 6 square feet of floor space per bird and never keep over 100 in one group after that time.

Feather picking and cannibalism can be reduced by raising not over 50 turkeys in one group after the ninth week of age. This is especially true of white feathered varieties, if cannibalism becomes a problem with confinement reared turkeys. Those raising large number of birds in confinement may not be able to reduce the number in each group to 50 but must resort to other methods of controlling feather picking. There are now many commercial anti-pick devices on the market. Some of the anti-pick devices are adjustable and can be used with turkeys of almost any age.

### Trimming Beaks Stops Picking

If cannibalism becomes serious and necessitates immediate action the upper bill may be trimmed back with a knife, wire clippers, tin shears or a pair of heavy scissors, until just a small amount of blood appears. The beak will not grow back until about three weeks after it is cut. Hopper feeding whole oats may help to discourage cannibalism. According to our observation and experience, it is very evident that excessive feeding of grit to turkeys raised in complete confinement will actually stimulate cannibalism.

Turkeys raised in confinement will consume excessive quantities of grit if fed free choice in hoppers. When this occurs, it results in a temporary impaction of the gizzard with grit and this in turn causes the bird to become vicious. This reaction creates a craving for feathers, and cannibalism becomes a problem.

### Hand-Feed Grit

As it is only natural for a turkey to retain a small percentage of the grit consumed, the balance being eliminated through the feces, there is no particular reason to have turkeys consume any great quantity of grit. We have been able to stop cannibalism almost entirely with confinement reared turkeys by eliminating the feeding of grit for a period of two weeks and then just scattering a small amount of insoluble grit on top of the mash once or twice a week. Therefore, hand feeding grit on the mash twice each week is sufficient.

Under such a system of feeding, turkeys raised in complete confinement will consume about 4 pounds of grit, compared to 12 pounds per bird when grit is fed free choice. Quite often, gravel, taken from a local bank, proves to be soluble, so the mineral balance of the ration may be upset and the turkeys may develop perosis. Sand, if soluble to any extent and consumed in quantities by the poults, may cause some of the turkeys to develop perosis.

### Provide Shade

If the turkeys are to be kept on the rearing platform throughout the entire growing season, some shade should be provided. The feed hoppers and roosts on the platform should be protected against storms by a roof. A good serviceable roof can be made out of commercial insulation board or galvanized roofing. A roof made of 28-gauge galvanized material will give many years of service with little or no replacement cost. A turkey rearing platform should be designed so the birds have some access to the direct rays of the sun. Although the turkeys are able to expose themselves directly to sunshine, a growing ration should contain vitamin D. There is no reason to worry about a fishy flavor in the turkey meat if a high quality fish meal or oil is used.

Avoid using any ingredient with a high free fatty acid content. Turkey starting and growing rations to be fed to confinement reared birds should have a generous "overage" of all vitamins, especially A, D, and G. The mineral balance must be very carefully controlled, or there may be some difficulty with perosis and slow growth. The fibre content is also another important nutritional factor which must be given careful consideration when formulating turkey rations for the confinement of system of rearing.

Turkey rations which will give satisfactory results with the confinement system of rearing will be entirely satisfactory when raising turkeys by natural methods, on range but the reverse is not necessarily true.

# *Hens Need Calcium to Maintain High Production*

The shell of an egg is almost pure calcium carbonate and represents about 10 per cent of the total dry weight of an egg. Obviously, layers require a steady intake of calcium in order to maintain production. In addition to shell-making, calcium is needed for yolk and albumen, for tissue repair and maintenance, and other body functions.

The hen is only 50 per cent efficient in using the calcium carbonate of her diet to make egg shells. This was shown in experiments in England. It means that for every ounce of calcium the hen is able to deposit in egg shells, she must "spend" an additional ounce for other body purposes and by way of normal excretion. Thus, if a 200-egg hen uses 2½ pounds of calcium carbonate for egg shells each year, she must receive in her feeds the calcium equivalent of 5 pounds of limestone. Even the average farm flock hen producing 85 eggs needs the calcium equivalent of more than 2 pounds of limestone on this basis, which is considerably more than the average unsupplemented ration contains.

When rations are fed that lack calcium, poor egg production and poor shelled eggs result, as reported by Kentucky, Wisconsin, Ohio and other Experiment Stations. Dr. Jull U. S. Department of Agriculture observes definite correlation between weight of eggs produced and amount of calcium carbonate consumed.

Proteins, fats and carbohydrates, fed excessively are usually stored in the body, but not calcium carbonate (lime) except slightly, in the bones. Calcium not needed by the body for its various immediate needs is excreted, consequently the hen's supply must be continuous. The hen must maintain a minimum amount of calcium in her system and failure to maintain this necessary positive calcium balance results in cessation of laying.

—Robert L. Quait in Mineral Highlights (Vol. 1, No. 3), Limestone Production Corporation of America.

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# Diary of a Poultryman

## By PERCY S. WHITE

Wayne County, Ohio

**July 1**—I believe our plan of working in the woods for the balance of this week is as good as any. Next Monday we will start cleaning the houses, starting with the third floor of the barn. In the meantime we should get a few more square rods of the wood lot cleared. The winter's wood pile is taking on increasing proportions each day. Harold and I both will draw on it so it won't last forever.

I was fortunate enough to pick off some neighbor's cat with the shotgun. Cats don't bounce when hit with a load of buckshot; they stay put. I don't have any scruples against shooting cats, but I am very particular to see that the incinerator is started immediately thereafter. Burned evidence is no evidence, unless there is an analysis of the ashes. I haven't delved into the subject enough to know if cat ashes would have the same analysis as chicken ashes or not.

**July 2** — I just can't keep from selling a few market hens almost every week. It really is a good policy to keep the cull stock down to a minimum. I try to, but often times think I am too chicken hearted. Perhaps I should say that with all probability my liver is too big, also. I think "big livers" are the cause of some of my mortality. Chicken men, beyond a question of a doubt, have more diseases to contend with than any other class of livestock producers.

**July 3** — I missed out on the chicken auction this week. It was held last Tuesday, as tomorrow is the Fourth, and I forgot all about it until this afternoon. Well, it is too late now; spilled milk, water over the dam, sour grapes. I don't think I had any stock that was good enough to sell, anyhow. Sometimes they get past that stage before I realize what is happening.

**July 4** — The Fourth, the Fourth, the Glorious Fourth. We all worked holiday hours. The family stayed at home, too. Traffic was so heavy on this road that it was really too dangerous to be safe.

**July 5**—I have often heard tell of triple yolk eggs, but I never saw one before until tonight. I have candled eggs for over a quarter of a century and have seen many queer freaks in that time. The air cell is usually in the large end, but I have seen them on the side, which isn't such an uncommon place. Two or three times

Unpublished material prepared for Everybodys Poultry Magazine, Hanover, Pa.

I have found it in the small end, which is exceedingly rare. I have even seen an egg that had two air cells, and such a phenomenon is as rare as hen's teeth. Since I have seen three yolks in an egg, probably I have seen all the freaks in eggs that are or ever will be.

**July 7** – Well, we tried to get started on the cleaning, but about all that we accomplished was to collect our cleaning equipment. This was really a job in itself, because it takes brooms, scrapers of several sorts, shovels, the sand screen, and a few carpenter tools for repairs, in fact, well nigh all the tools we have on the ranch before the job is completed.

There are several sash that have to be reglazed. I have wind storm insurance to take care of those sash that are blown out, but when the glass gets broken by accident it is a chicken of another color. I don't have to buy any more panes of glass; I am in a position to sell a few. If a sash rots out, there is nothing gained by smashing the panes.

**July 8**—Range paralysis is almost a thing of the past. Perhaps I have spoken too hastily. I should say that it appears to be on the extreme decline so far this season. This statement should give me a loophole to crawl out if paralysis should crack down.

The only explanation that I can give is the fact that the survivors of the past two and three years have been used as breeders. I realize that this is a broad statement to make, and that range paralysis is probably caused by a combination of several complications. But it is reasonable logic to me that if a bird can survive the "complications," that individual is a survival of the fittest. And that several generations of the survivals of the fittest might have a tendency to lead to self-immunity to a more or less degree. Only time will tell.

**July 10** – This was an awful day. Chris Begley baled the field of timothy hay on the Fike farm. The field had been covered with chicken manure to a fare-ye-well, so the hay crop was one often read about, but seldom seen. An old hay field, worn out and down at the heel, plus a dash of chicken manure, and, presto, 14 tons of hay from 7 acres. Chris has a pickup baler that bales 40-pound units, tying them with binder twine. Harold and Donnie have had a day of it, hauling all except three loads on our half-ton truck. They are still hauling, and it is now 11 p.m. O! dear me Suz, what a day; what a pile of hay.

**July 11**—The cleaning on the third floor is progressing rapidly. It looks as if the boys will finish the job by tomorrow night. This is really making good time, considering all of the regular work that has to be done regardless of what takes place. The perches and dropping boards were given a coat of a solution of 20 per cent creosote and 80 per cent kerosene. The nests were dipped in a barrel of it. A hot lye solution was scrubbed on the floor.

If the woodwork is dry, we will put in the litter and the nesting material. The floor really doesn't make very much difference, but it is a poor policy to get the nesting material soaked with creosote. The eggs are not as palatable.

**July 14** – I am trying to raise a flock of "job rated" pullets for this winter's production. The trouble is that I am an idealist and often set my sights too high. Then when something happens, and it always does happen to me just when prices are the highest, it takes a long time for me to parachute down to the realm of realism. It is idealistic to walk around the range with my head in the clouds, but it is an awfully good policy to see the bloody droppings on the ground.

**July 15** – I was just so tired of hearing the death rattle in the bones of the living that I picked up a couple of running gears and put them in the incinerator. Last winter I heard the death rattle in the throats and now I hear it again in the bones of those birds that survived the colds. It seems to me that death stalks stark naked around the ranch all the time.

**July 16**—After the horse has been stolen, we put a lock on the door, Donnie has started trapping again after several chicks have been killed on the range.

**July 17**—Harold and Donnie will finish cleaning the second floor of the barn this week. They surely make good time for the amount of time they are able to work at the job. Around this time of the year, the corruption in the air gets so thick I am not of much use to myself, let alone to someone else. Someday there will be a frost and the air will be purified. Fortunately, Donnie is getting to be a great big boy and is able to do lots of work. The old hens are gradually being eliminated.

Kid White took a couple of coops to the auction today and her return load was corn. I rather expect that she will be the official truck driver for the next few weeks. The boys here, at the auction, and at warehouse handle the cargo so Kid White only has the driving to do.

**July 18**—The egg room temperature is running around 60° and the relative humidity about 85 per cent. Interior egg quality is holding up. The inspector hasn't been grumbling for quite some time, so everybody is satisfied. Egg prices are not so bad, either, and production is holding up as well as could be expected.

**July 19** – We had a flood today, and it didn't rain either. Something went wrong with the float valve in one of the fountains in the west house. Foreign material of some sort must have become stuck in the valve. Anyway, it wouldn't shut off. A loose feather fell off of a hen and into the water, eventually finding its way to the quarter-inch overflow pipe. Little particles of mash started floating around, also, and the combination made a very effective plug for the overflow. There is no use to tell the rest, for no one would believe it if I did tell it.

**July 21**—Neighbors hereabouts are getting rather het up about this wheat business. I am too. In fact I don't think I will buy any wheat this harvest. I would just as soon have good, heavy oats any day as wheat. There is no penalty or red tape connected with buying oats. Neither is there any penalty connected with producing two eggs where only one grew before.

**July 22**—This egg case situation is becoming serious. Tonight I had to throw away all the innards of one case and part of another. Dirty, broken flats and fillers are not good packing material for good eggs. At this time of the year, special care should be taken to see that only clean flats and fillers are used. A little mold on either is very apt to ruin the whole case of eggs.

Inspector Sidle was telling me today that he found two cases recentl that he had to condemn in th entirety, that the cases were jus lousy with mold, and the odor wa stupendous. Fortunately, he ha never found any mold in my cases but if he did, it would be my loss not his.

**July 24**—It is surprising how man chickens are produced in this area I was at the auction building at 8 o'clock this morning and the parkin lot was full of trucks, cars, and trailers, each vehicle with more or less coops of chickens, old hens, old roosters, broilers, and some youn roasting size. Old cock birds with 2-pound combs, hens fat, pleasingl plump, or otherwise, they were all there, like at the animal fair.

The live auction room is one place I don't loaf, for I am afraid of bringing home some disease. The inspectors are on the job. More than once I have seen one of them escort a red faced produced and his coops to the producer's truck, homeward bound.

**July 25** – This was a holiday for me, if one can consider a sick man going to Cleveland specialists as being a holiday. This corruption in the air is giving me fits, headache, burning eyes, and choking in the bronchial tubes. It is a feeling not to be sneezed at, although the specialists were not able to determine what was causing the sneezing. I guess I will stay close to the house for a while longer.

**July 26** – Herb Alp's Illinois chicken tour will be here around 10 o'clock next Tuesday morning, so he informed me in a letter today. He didn't say how they were traveling, but I still think it will be by bus. Bus touring is a friendly way to travel, as it gives a good chance to visit with folks who have the same things in common.

Herb says there will be between 30 and 35 on the tour. Kid White plans to pour chocolate as soon as they disembark and the ranch tour will follow. We are not going to make an extra special effort to have the ranch "red up," as I believe everyone would rather see us in our working clothes.

**July 28**—The old stock which is being moved as the cleaning progresses is not being bloodtested this year. Bloodtesting will follow later, when they are doubled up for winter. Moving laying birds from one house to another is hard enough on them, but bloodtesting at the same time is twice as bad. I need the eggs, all I can get, and then some. Paying feed bills is getting to be serious, since feed isn't getting any cheaper.

**July 29** – Kid White, Donnie, Janey, and Harold did the honors for the Illinois tour. I was feeling rather poorly, too much hay fever, and didn't feel equal to cutting the mustard. The bus arrived at 10:30, parking across the road. As the tour trooped under the trees in the front yard, Kid White and Janey started pouring ice cold milk chocolate. It was a hot day, and everyone seemed to enjoy the cool drink. Then followed a personally conducted tour, visiting, and answering questions. The crowd eventually ended up right where it has started, at the milk chocolate table. After another round of drinks, and I think everyone had all he cared to drink, they loaded in the bus and were gone, apparently well pleased with their visit. All of us were well pleased, also, because we enjoy having friendly visitors, visitors who are like us, just folks.

**July 30**—The boys have the west half of the block house cleaned, with the exception of straightening up the furniture, litter, and nesting material. There were two big trailer loads of manure in the dropping pit, which, of course, took time to haul and spread. The entire floor was scrubbed with lye solution, applied boiling hot. It should be dry by morning. Replacing the furniture, spreading the litter, and replenishing the nests should not take long. In the afternoon, the birds in the east end will be enticed through the door and the process started all over again in that section.

**July 31**—Here I am at the end of the month. Tomorrow is another day, but a day that comes only once a month. There will be some bills to pay and there won't be very much left in the treasury after they are paid. My profits are all going into raising pullets. They are potential assets, but at the present they are a big drain on the check book. They are like a wheat crop in the ground, extremely valuable, but not ready to cash in on until ripe.

This year's pullet crop is as good as I have had in recent years, very few runts to date. No doubt there will be more when they are housed but the pullet prospects look bright. Perhaps I will be able to realize a long cherished ambition and be able to retire on the profits. I have had this secret ambition each year for the past 16 years, but it has never come true.

## *Let's Cut Distribution Costs*

Five trucks stopping at one farm to try to buy eggs . . . . Chickens shipped from Delaware back to Chicago while Illinois chickens are being shipped to Philadelphia . . . Pacific Coast eggs shipped to New York while South Dakota eggs are being shipped to California.

We used to call it competition.

Now we recognize it for what it is—a waste of tires and trucks and freight cars. This is not economical distribution. It has resulted in a wide spread between the price you get for your poultry and eggs and the price consumers in the cities pay for them. Those at either end blame the man in the middle and think he is pocketing the difference, when actually much of the difference goes to pay for all this unnecessary hauling back and forth.

If we don't have the tires and trucks and freight cars to haul poultry and eggs all over the country—and often back again, we will supply the nearby sections with what they need and ship only the surplus. People will get better food (no egg, for instance, was ever improved by a cross-country haul) and the transportation load will be lessened just that much.

War-time demands may force us to make improvements in our distribution system which we didn't have the courage to make in times of peace. There is no doubt that we could cut out a lot of unnecessary expense if we really set out to do it.

—Frank Priebe's Weekly Letter to Poultrymen, May 21, 1942.

# VIEWS OF THE EDITORS

### Reduced to a Powder

Overnight, a revolution was wrought in the egg-producing industry of this country that is destined to affect every single producer of eggs. Ottawa received word from Britain that henceforth all eggs must be shipped in dry form.

There are those who regard this innovation as purely a war measure, and believe that after hostilities cease we shall revert to our previous methods of handling and merchandising eggs. Not for a moment do we believe this will be so.

The buying public in Britain will become accustomed to buying dried egg powder. They will learn to use this powder in a hundred and one ways. New standards of quality will be applied to our product in this new form, and what has been forced upon a public due to war risks in transportation will become an accepted part of their future daily lives. The experience gained in producing dried eggs for overseas shipment will later be used for our own domestic market.

Not that we suggest that the use of shell eggs will cease. The boiled egg for breakfast and the pleasant aroma of bacon and eggs will continue to attract us all as they have in the past. What we see in this new move to conserve shipping space is an entirely new avenue for the poultry industry to cater to.

Eggs have been dried on a large scale for many years, the product going mostly to baking establishments, and little being used in the average home. Mostly low grade eggs have been used for conversion into powder and activity of drying plants has been confined to the flush period of spring.

We believe that egg drying can be used to advantage in stabilizing fresh egg markets; used to take off all the peewees and pullet eggs that annually depress our fall markets and allow the public to buy good "hen-fruit" at below cost of production. We believe that the public can be given (sold) a superior product when all poor shelled, soiled, small, or overly large eggs are removed from the fresh egg channels into drying plants.

What we would like to see come about is control of drying plants by producer organizations, for in that way a greater degree of control could be exercised upon the whole of their product and no one will deny that is a very desirable aim for the future.

Dried egg products may have taken several decades to popularize under normal circumstances. As it is, necessity has decreed an immediate and compulsory use that cannot help but lay the foundations for a permanent demand.

—Canada Poultryman, May, 1942.

## Experience is a Hard Teacher

Even the smartest of us has to bump his head against a wall now and then before being convinced that he can't always butt it over. That old political fox and labor czar, John L. Lewis, is the latest to learn that it is a fundamental blunder to underestimate the intelligence of the sucker you are about to fleece. He is now in the process of taking a $500,000 short course on "how not to organize dairy farmers"—and all because he underestimated the intelligence of American farmers.

Thousands of stories that make the gullible farmer the butt of the joke had convinced poor old John that here was a fertile field worthy of his cultivation. But he, of all people, should have known that you can't believe everything you hear, and he made the tragic mistake of underestimating our mental ability so far that it has rubbed our fur the wrong way.

Now we farmers are normally an easy going lot and we periodically take a fleecing from city slickers with well-oiled "get-rich-quick" schemes. We're even fascinated and taken in by variations of the old shell game at our county fairs every fall, but the "cock and bull" story advanced by "Dear John" and his henchmen for the organization of dairymen into District 50 of the United Mine Workers calls for such starry-eyed faith in the good fairy that it's an insult to our intelligence and has made us all fighting mad.

John! John! I'm disappointed in you! I thought you were smarter than that—but let this be a lesson to you!

—Washcoegg, June, 1942.

## Not Enough Yet

Farm production in 1942 will break all records, but American farmers will be called upon in 1943 to increase again their output of essential foods. This must be done despite shortages of labor, machinery, and supplies.

Authority for that statement is Fred S. Wallace, chief of the Agricultural Adjustment Administration, who recently addressed AAA chairmen from each of the 48 states. He asked them to outline a 1943 production program after informing them what was needed and the powers they possessed to achieve their goal.

Graphically, Mr. Wallace pointed out that an average cargo ship carries to American expeditionary forces or their allies production from 3,800 average farms in dried eggs, dried or evaporated milk, cheese, canned or cured pork, lard, flour and canned vegetables.

Every time a 35,000-ton battleship goes to sea, it takes food from 42,000 acres of land for the workers who launch it.

It is going to take effective planning and close co-operation between all parts of our agricultural machine if the United States is to be successful in furnishing food for most of the world. It cannot be done if man-power or materials are wasted or inefficiently used.

Milk, cheese, eggs, pork, and lard are the products of feeding. The better the feeding and management of flocks and herds, the more of those foods can be produced. The commercial feed industry stands ready to aid American farmers to increase production of the necessary foods, quicker and more efficiently than is possible in any other way.

—Feedstuffs, May 23, 1942.

## Ceiling On Eggs?

A poultryman visitor from Spain told us two years ago that his government set a maximum price on eggs equivalent to 70 cents a dozen. Eggs were so scarce, though, that only "gentlemen" lived up to the agreement. We were shocked to learn that many poultrymen in Spain were not gentlemen and that a good many left-handed transactions in eggs occurred.

Before this is printed our own government may have set rigid maximum prices on eggs.

We would much prefer that "freezing" of eggs refer only to cold storage operations and not to prices. There is the danger that an artificial price will not be a just one and that maximum production will be discouraged. If prices are artificially controlled, poultrymen should make the best of the situation and strive for greater efficiency. This calls first of all for better stock.

The weakness with all price-fixing programs and attempts to regulate business operations to a fine point in a fair manner is that human ingenuity is simply not equal to the job. Our experts are not expert and experienced enough and the task becomes too involved and complex for anything short of genius. Thus, inequalities result, and in the end natural forces prove soundest.

In an emergency, it may be necessary to set a price on biddy's work day. If this happens, we hope the result is beneficial to the war effort. Too many of the peacetime economic panaceas of the United States Department of Agriculture backfired and proved duds for the simple reason that the experts were not expert enough to correctly analyze a difficult and intricate problem. The result was that new problems were created, which in many instances were more serious than the original one.

A hazard in price fixing is the

extreme difficulty in accurately determining cost of production. This is not as simple as some enthusiastic "planned economists" would believe. An able accountant for a large corporation once told us that the best unit cost records his firm had ever compiled, and which entailed a heavy expense to obtain, were after all only cost estimates, the accuracy of which could not be guaranteed.

In the meantime, we are not afraid of a "planned economy." We only fear the wisdom of the planners and the quality of the planning. These factors are as important in war as in peace.

—Dryden Poultry Bulletin, June, 1942.

## Confusing Production Quotas

One of the biggest jobs of the new War Food Requirements Committee is to decide how much food is needed—and when.

With all the uncertainties – the weather, the labor supply, the number of ships that will be available—it's not an easy job to figure out production quotas for food. We realize that, but at the same time, we hope they will be able to estimate their needs a little more accurately than they did on cheese a year ago.

Then farmers were urged to produce milk for more cheese and we were all asked to eat less cheese so Lend-Lease orders could be filled.

Evidently they miscalculated some place along the line, because today the storage warehouses are bulging with cheese – close to 200,000,000 pounds, which is three times the normal reserve at this time of year. So the Department of Agriculture has been forced to do a right-about-face—Last year it was our patriotic duty to give up cheese; this year it's our patriotic duty to eat all we can.

When the 1942 production quota for eggs was set, it was said to be large enough to give us a normal number for home use, to give the men in the armed forces an extra dozen apiece, and to meet Lend-Lease requirements.

This week I read on the first page of a financial newspaper that the Army expects to use 3,000,000 pounds of dried eggs every month . . . that the Agricultural marketing Administration intends to send some 17,000,000 5-ounce packages of dried eggs to England . . . that the number of egg drying plants has increased from 16 to 82 . . . that these plants can produce 300,000,000 pounds of dried eggs a year . . . that still more plants will be opened.

Then I picked up another newspaper and read that the government will soon organize "a vast army of 'food wardens' to carry to the people rationing news and tips for improving the American diet."

Their job, according to M. L. Wilson, director of the USDA's extension service, will be to explain to housewives that it is their patriotic duty to help lessen temporary shortages and reduce temporary surpluses, which he says are bound to develop in some commodities "as movement of foods to other nations lags behind growing agricultural production."

Significantly, one of their first duties will be to inform housewives "of the health benefits in eating cheese and to urge larger consumption of eggs."

In the same paper the food editor said, "Each person should have at least three or four eggs per week. Beyond the necessary quota you can save on egg consumption. Use an extra teaspoon of baking powder for every egg you leave out of a baking recipe."

In a paper published for the produce trade, I read that the AMA has designated broiling and frying chickens as the Victory Food Special in July and will sponsor a merchandising campaign as a part of their program to stimulate the consumption of perishable foods whenever there is a local or seasonal surplus.

Tht poultry crop this year will be a record-breaking one and the government plans to buy canned chicken, which will help support the market to some extent. At the same time many butchers insist that people won't buy chicken in any quantity unless the price goes down.

With one "authority" contradicting another, with yesterday's advice reversed today, it's no wonder we're dizzy. The only thing certain is that, with so much of the world's productive land turned into battle grounds, people will need all the food we can possibly produce. The chief problem is how to get it to them.

—Frank Priebe's Weekly Letter to Poultrymen, June 25, 1942.

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## *Chick Embryos in Scientific Research*

Chick embryos are coming to play a more and more valuable role in studies of virus diseases that affect both human beings and animals, the Bureau of Animal Industry reports. They are used also in producing highly important vaccines and serums.

The membranes of the normal chick embryo in various stages of development are useful for propagating filtrable viruses and for studying many of the baffling ailments that have been traced to virus sources. Some of the diseases of barnyard fowls, sleeping sickness of horses, psittacosis (parrot fever), Rocky Mountain spotted fever, pneumonia of cattle, influenza of both men and animals, and other similar diseases have been studied with the aid of chick embryos.

—U. S. Egg and Poultry Magazine, June, 1942.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

### May Egg Production

| State and Division | Number of layers on hand during May 1941 | 1942 | Eggs per 100 layers 1941 | 1942 | Total eggs produced During May 1941 | 1942 | Jan. to May 1941 |
|---|---|---|---|---|---|---|---|
| | Thousands | | Number | | Millions | | |
| Me. | 1,504 | 1,646 | 2,009 | 1,931 | 30 | 32 | 138 |
| N. H. | 1,235 | 1,346 | 1,897 | 1,885 | 23 | 25 | 109 |
| Vt. | 680 | 751 | 1,993 | 2,043 | 14 | 15 | 57 |
| Mass. | 3,182 | 3,414 | 1,972 | 1,996 | 63 | 68 | 286 |
| R. I. | 384 | 374 | 1,798 | 1,953 | 7 | 7 | 34 |
| Conn. | 2,036 | 2,200 | 1,841 | 1,965 | 38 | 43 | 173 |
| N. Y. | 10,942 | 11,116 | 1,817 | 1,823 | 199 | 203 | 878 |
| N. J. | 4,490 | 5,006 | 1,720 | 1,761 | 77 | 88 | 411 |
| Pa. | 12,871 | 14,438 | 1,817 | 1,823 | 234 | 263 | 1,057 |
| N. Atl. | 37,324 | 40,291 | 1,835 | 1,847 | 685 | 744 | 3,143 |
| Ohio | 15,077 | 15,974 | 1,817 | 1,848 | 274 | 295 | 1,149 |
| Ind. | 9,810 | 10,834 | 1,835 | 1,876 | 180 | 203 | 775 |
| Ill. | 14,658 | 16,526 | 1,724 | 1,755 | 253 | 290 | 1,040 |
| Mich. | 8,401 | 9,255 | 1,860 | 1,844 | 156 | 171 | 677 |
| Wis. | 11,416 | 12,927 | 1,786 | 1,795 | 204 | 232 | 841 |
| E. N. Cent. | 59,362 | 65,516 | 1,797 | 1,818 | 1,067 | 1,191 | 4,482 |
| Minn. | 15,696 | 18,196 | 1,854 | 1,851 | 291 | 337 | 1,113 |
| Iowa | 22,929 | 26,876 | 1,724 | 1,798 | 395 | 483 | 1,531 |
| Mo. | 15,875 | 17,736 | 1,742 | 1,795 | 277 | 318 | 1,136 |
| N. Dak. | 3,228 | 3,876 | 1,792 | 1,820 | 58 | 71 | 197 |
| S. Dak. | 5,268 | 6,428 | 1,720 | 1,810 | 91 | 116 | 326 |
| Nebr. | 8,751 | 10,846 | 1,798 | 1,866 | 157 | 202 | 654 |
| Kans. | 10,560 | 12,702 | 1,823 | 1,826 | 193 | 232 | 812 |
| W. N. Cent. | 82,307 | 96,660 | 1,776 | 1,820 | 1,462 | 1,759 | 5,769 |
| Del. | 712 | 766 | 1,795 | 1,752 | 13 | 13 | 60 |
| Md. | 2,493 | 2,700 | 1,668 | 1,730 | 42 | 47 | 186 |
| Va. | 5,614 | 6,678 | 1,624 | 1,649 | 91 | 110 | 434 |
| W. Va. | 2,840 | 3,137 | 1,823 | 1,807 | 52 | 57 | 204 |
| N. C. | 5,508 | 6,516 | 1,569 | 1,596 | 86 | 104 | 375 |
| S. C. | 2,344 | 2,676 | 1,386 | 1,457 | 32 | 39 | 140 |
| Ga. | 4,614 | 5,524 | 1,410 | 1,454 | 65 | 80 | 271 |
| Fla. | 1,394 | 1,512 | 1,569 | 1,658 | 22 | 25 | 104 |
| S. Atl. | 25,519 | 29,509 | 1,579 | 1,610 | 403 | 475 | 1,774 |
| Ky. | 5,765 | 7,722 | 1,720 | 1,736 | 99 | 134 | 452 |
| Tenn. | 5,918 | 7,094 | 1,513 | 1,581 | 90 | 112 | 415 |
| Ala. | 4,237 | 5,150 | 1,513 | 1,587 | 64 | 82 | 266 |
| Miss. | 4,424 | 5,236 | 1,457 | 1,469 | 64 | 77 | 247 |
| Ark. | 4,900 | 6,043 | 1,606 | 1,624 | 79 | 98 | 311 |
| La. | 2,859 | 3,310 | 1,401 | 1,404 | 40 | 46 | 164 |
| Okla. | 7,606 | 9,508 | 1,736 | 1,717 | 132 | 163 | 571 |
| Tex. | 18,349 | 21,293 | 1,649 | 1,640 | 303 | 349 | 1,278 |
| S. Cent. | 54,058 | 65,356 | 1,611 | 1,623 | 871 | 1,061 | 3,704 |
| Mont. | 1,418 | 1,690 | 1,779 | 1,832 | 25 | 31 | 103 |
| Idaho | 1,599 | 1,838 | 1,804 | 1,792 | 29 | 33 | 123 |
| Colo. | 2,300 | 2,817 | 1,699 | 1,786 | 39 | 50 | 164 |
| Utah | 1,645 | 1,752 | 1,693 | 1,804 | 28 | 32 | 136 |
| Wash. | 5,008 | 5,100 | 1,841 | 1,848 | 92 | 94 | 421 |
| Oreg. | 2,598 | 2,692 | 1,851 | 1,894 | 48 | 51 | 214 |
| Calif. | 10,691 | 11,803 | 1,717 | 1,798 | 184 | 212 | 842 |
| West | 27,157 | 29,825 | 1,756 | 1,807 | 477 | 539 | 2,146 |
| U. S. | 285,727 | 327,157 | 1,738 | 1,763 | 4,965 | 5,769 | 21,018 |

Hens on farms laid 5,769,000,000 eggs in May, a record high for the month. This was 16 per cent above May 1941, and 21 per cent above the 10-year (1931-40) average. A record high production was reached in all parts of the country except the Western and the East North Central States. All except 1 per cent of this increase was due to an increase in the number of layers.

The total egg production during the first 5 months of this year was 16 per cent larger than in the same period in 1941 and 26 per cent above the 10-year average. The largest increases in production have taken place in the West North Central and South Central States.

The rate of egg production per layer during May set a new high for the month. 17.6

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stimulated the production of broiler chicks which is expected to continue as long as the broiler price remains favorable.

—Comment from U. S. D. A. Poultry and Egg Production Report.

## Receipts of Eggs and Poultry

Receipts of eggs at Central Western packing plants have shown a downward seasonal trend since early May, but are still about 50 per cent greater than a year ago. There has not been much change the past month

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

May Egg Production

| State and Division | Number of layers on hand during May 1941 | Number of layers on hand during May 1942 | Eggs per 100 layers 1941 | Eggs per 100 layers 1942 | Total eggs produced During May 1941 | Total eggs produced During May 1942 | Total eggs produced Jan. to May 1941 | Total eggs produced Jan. to May 1942 |
|---|---|---|---|---|---|---|---|---|
| | Thousands | | Number | | Millions | | | |
| Miss. | 4,424 | 5,236 | 1,457 | 1,469 | 64 | 77 | 247 | [illegible] |
| Ark. | 4,900 | 6,043 | 1,606 | 1,624 | 79 | 98 | 311 | [illegible] |
| La. | 2,859 | 3,310 | 1,401 | 1,404 | 40 | 46 | 164 | [illegible] |
| Okla. | 7,606 | 9,508 | 1,736 | 1,717 | 132 | 163 | 571 | [illegible] |
| Tex. | 18,349 | 21,293 | 1,649 | 1,640 | 303 | 349 | 1,278 | [illegible] |
| S. Cent. | 54,058 | 65,356 | 1,611 | 1,623 | 871 | 1,061 | 3,704 | [illegible] |
| Mont. | 1,418 | 1,690 | 1,779 | 1,832 | 25 | 31 | 103 | [illegible] |
| Idaho | 1,599 | 1,838 | 1,804 | 1,792 | 29 | 33 | 123 | [illegible] |
| Colo. | 2,300 | 2,817 | 1,699 | 1,786 | 39 | 50 | 164 | 196 |
| Utah | 1,645 | 1,752 | 1,693 | 1,804 | 28 | 32 | 136 | 147 |
| Wash. | 5,008 | 5,100 | 1,841 | 1,848 | 92 | 94 | 421 | 426 |
| Oreg. | 2,598 | 2,692 | 1,851 | 1,894 | 48 | 51 | 214 | 238 |
| Calif. | 10,691 | 11,803 | 1,717 | 1,798 | 184 | 212 | 842 | 925 |
| West | 27,157 | 29,825 | 1,756 | 1,807 | 477 | 539 | 2,146 | 2,334 |
| U. S. | 285,727 | 327,157 | 1,738 | 1,763 | 4,965 | 5,769 | 21,018 | 24,460 |

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National Poultry Digest
HANOVER,
PENNA.

Hens on farms laid 5,769,000,000 eggs in May, a record high for the month. This was 16 per cent above May 1941, and 21 per cent above the 10-year (1931-40) average. A record high production was reached in all parts of the country except the Western and the East North Central States. All except 1 per cent of this increase was due to an increase in the number of layers.

The total egg production during the first 5 months of this year was 16 per cent larger than in the same period in 1941 and 26 per cent above the 10-year average. The largest increases in production have taken place in the West North Central and South Central States.

The rate of egg production per layer during May set a new high for the month—17.6 eggs per layer compared with 17.4 eggs in May last year and 16.7 eggs, the 10-year average. The average hen in farm flocks laid 70.4 eggs during the first 5 months of this year, which is 3 per cent more than the average hen laid during the same period last year.

Layers in farm flocks totaled 327,157,000 during May, the largest number of record for the month. This exceeded last May by 14 per cent and the 10-year average by 15 per cent. The largest increase above a year ago was 21 per cent in the South Central States and the smallest increase, 8 per cent in the North Atlantic States.

The number of young chicks in sample farm flocks increased 40 birds per flock during May, which is less than the 10-year average increase. However, numbers of young chickens on June 1 were the largest since 1930 because of record high early hatchings in April and May — 12 per cent above the 10-year (1931-40) average. Increases of from 8 to 16 per cent occurred in all parts of the country except the North Atlantic States where a decrease of 4 per cent took place.

Commercial broiler production so far this year has been considerably less than it was during the same months last year because of a less favorable relationship between broiler prices and feed cost. However, an improvement in the broiler price situation during the latter part of May has stimulated the production of broiler chicks which is expected to continue as long as the broiler price remains favorable.

—Comment from U. S. D. A. Poultry and Egg Production Report.

## Receipts of Eggs and Poultry

Receipts of eggs at Central Western packing plants have shown a downward seasonal trend since early May, but are still about 50 per cent greater than a year ago. There has not been much change the past month in the trend of receipts at Pacific Coast country packing plants, the seasonal decrease continuing, and current marketings during June being about 30 per cent greater than a year ago. In May the percentage increase over 1941 was not quite as great as this. California plants continue to receive more than double the combined receipts of plants in Washington and Oregon.

Terminal market receipts in May were 5 per cent less than in May 1941, but indications point to the probability of a relatively small difference in June this year and last. While receipts from the Pacific Coast at the four eastern markets are small in relation to total receipts, it is noted that the arrivals from that area in May were 54 per cent greater than a year earlier. In the previous month (April) there was a reduction of 84 per cent.

**Receipts of Eggs (cases) at 4 Markets***

| Geographic Section | May 1942 | May 1941 | % change | Jan. to May, Inc. 1942 | Jan. to May, Inc. 1941 | % change |
|---|---|---|---|---|---|---|
| New England | 78,291 | 45,578 | + 71.8 | 417,927 | 262,665 | + 59.1 |
| Middle Atlantic | 332,848 | 251,675 | + 32.3 | 1,403,153 | 1,156,918 | + 21.3 |
| South Atlantic | 58,859 | 25,704 | +129.0 | 213,758 | 131,204 | + 62.9 |
| East North Central | 416,066 | 501,257 | − 17.0 | 1,704,483 | 1,719,014 | − 0.8 |
| West North Central | 830,709 | 995,435 | − 16.5 | 3,040,879 | 3,796,923 | − 19.9 |
| South Central | 21,992 | 14,353 | + 53.2 | 123,859 | 60,430 | +105.0 |
| Mountain | 23,660 | 28,294 | − 16.4 | 96,179 | 116,709 | − 17.6 |
| Pacific | 11,150 | 7,240 | + 54.0 | 50,969 | 43,795 | + 16.4 |
| Miscellaneous | 384 | 316 | + 21.5 | 1,964 | 2,211 | − 11.2 |
| TOTAL | 1,773,959 | 1,869,852 | − 5.1 | 7,053,171 | 7,289,869 | − 3.2 |

**Receipts of Dressed Poultry (pounds) at 4 Markets***

| Geographic Section | May 1942 | May 1941 | % change | Jan. to May, Inc. 1942 | Jan. to May, Inc. 1941 | % change |
|---|---|---|---|---|---|---|
| New England | 803,141 | 1,416,038 | − 43.3 | 1,697,121 | 2,550,485 | − 33.5 |
| Middle Atlantic | 8,125,308 | 8,118,134 | + 0.1 | 18,963,128 | 17,819,554 | + 6.4 |
| South Atlantic | 6,909,774 | 4,649,531 | + 48.6 | 28,187,243 | 14,726,839 | + 91.4 |
| East North Central | 2,424,371 | 2,685,225 | − 9.7 | 11,048,495 | 14,283,445 | − 22.6 |
| West North Central | 7,450,235 | 8,794,096 | − 15.3 | 38,915,663 | 44,964,432 | − 13.5 |
| South Central | 1,538,938 | 2,281,324 | − 32.5 | 6,512,621 | 8,551,612 | − 23.8 |
| Mountain | 164,016 | 104,855 | + 56.4 | 2,932,925 | 2,450,212 | + 19.7 |
| Pacific | 1,623,747 | 1,155,197 | + 40.6 | 4,814,584 | 6,708,721 | − 28.2 |
| Miscellaneous | 0 | 0 | − | 0 | 0 | - |
| TOTAL | 29,039,530 | 29,204,400 | − 0.6 | 113,071,780 | 112,055,300 | + 0.9 |

*New York, Chicago, Philadelphia and Boston.

Reports covering Central Western packing plants show that receipts of live poultry are still increasing each succeeding week, and that since the last week of May, total receipts have been much heavier than a year ago. During the second and third weeks of June, receipts at these country assembling points were 50 per cent greater than a year earlier. For several months prior to June 1, receipts were much lighter than in corresponding periods of 1941. These weekly reports, which, for the first time since January, now show young stock separately, permit the observation that while total receipts are running much greater than in 1941, receipts of young stock are less than last year. The heavy marketings of fowl, in contrast to lighter marketings of younger poultry, are reflected in the previously mentioned differences in price trends of these separate classes.

Receipts of dressed poultry at the four principal markets during May were approximately the same as a year earlier, but June receipts have been running about 9 per cent heavier. Approximately 66 per cent of the receipts at the four markets went to New York, about 13 per cent to Chicago, 15 per cent to Boston, and 6 per cent to Philadelphia. In the case of storage holdings, more than half of the four market stocks are at Chicago.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Receipts of Eggs and Poultry at Central Western Primary Markets**

| Week Ending | Cases of Eggs 1942 | Cases of Eggs 1941 | % Chg. | Pounds of Poultry (000 omitted) 1942 | 1941 | % Chg. | Pounds of Young Stock (000 omitted) 1942 | 1941 | % Chg. | Pounds of Fowl (000 omitted) 1942 | 1941 | % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| June 6 | 390,214 | 260,460 | +49.82 | 3,216 | 2,700 | +19.07 | | | | 2,259 | 1,731 | +30.52 |
| June 13 | 338,452 | 245,100 | +38.09 | 4,150 | 2,739 | +51.51 | 688 | 718 | −4.30 | 3,004 | 1,647 | +82.38 |
| June 20 | 336,394 | 218,910 | +53.67 | 4,386 | 2,907 | +50.86 | 862 | 871 | −0.96 | 3,182 | 1,691 | +88.13 |
| June 27 | 308,706 | 216,509 | +42.58 | 4,198 | 3,017 | +39.12 | 1,119 | 1,118 | +0.05 | 2,803 | 1,694 | +65.47 |

**Receipts of Eggs at Pacific Coast Primary Markets**

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| June 6 | 59 | 82,511 | 63,688 | −3.77 | +29.56 |
| June 13 | 59 | 78,415 | 61,583 | −3.87 | +27.33 |
| June 20 | 59 | 76,366 | 58,911 | −3.42 | +29.63 |
| June 27 | 59 | 73,407 | 57,198 | −3.33 | +28.34 |

**Receipts of Eggs at Eastern Egg Auctions**

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| June 6 | 27 | 50,183 | −6.46 | +38.81 |
| June 13 | | | | |
| June 20 | 28 | 47,775 | −5.2 | +44.73 |
| June 27 | 25 | 42,480 | −4.9 | +40.9 |

## Egg-Feed Ratios

**Chicago Egg-Feed Ratio**

| Week Ending | Dozens of Egg to Buy 100 lbs. of Laying Ration 1942 | 1941 | 10-Yr. Avg. 1931-40 | Price of Fresh Graded Firsts (Dollars) 1942 | 1941 | Cost of Ration per 100 lbs. (Dollars) 1942 | 1941 |
|---|---|---|---|---|---|---|---|
| June 6 | 5.48 | 5.66 | 6.99 | .307 | .243 | 1.686 | 1.379 |
| June 13 | 5.53 | 5.62 | 6.86 | .305 | .247 | 1.690 | 1.386 |
| June 20 | 5.56 | 5.43 | 6.89 | .307 | .257 | 1.711 | 1.397 |
| June 27 | 5.54 | 5.19 | 6.97 | .307 | .274 | 1.700 | 1.424 |

**New York Egg-Feed Ratio**

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Avg. Egg Price Per Doz. (Dollars) | | | Avg. Feed Cost Per 100 lbs. (Dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 | 1942 | 1941 | 194 |
| June 4 | 7.5 | 8.1 | 10.8 | .324 | .260 | .175 | 2.42 | 2.10 | 1.8 |
| June 11 | 7.5 | 8.1 | 10.6 | .323 | .262 | .178 | 2.43 | 2.11 | 1.8 |
| June 18 | 7.6 | 7.9 | 10.9 | .323 | .272 | .178 | 2.44 | 2.14 | 1.9 |
| June 25 | 7.5 | 7.4 | 10.5 | .325 | .295 | .178 | 2.44 | 2.19 | 1.8 |

**Central California Egg-Feed Ratio**

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | | | |
|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | 1939 | 1938 | 193 |
| May | 7.76 | 7.37 | 10.18 | 8.64 | 8.07 | 11.02 |
| January-May | 7.66 | 7.54 | 9.77 | 7.59 | 8.25 | 9.90 |
| Year | | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 |

—Data Compiled by Dorothy B. Erdhal, University of California.

## Egg Prices

**1942 Egg Prices at New York City**

| Kind | June 5 | June 12 | June 19 | June 26 | June 26 '41 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 31¼ | 31¼ | 31 | 31½ | 27¾ |
| Wholesale Sales of Fancy and Extra Fancy White | 33½-36 | 33½-36½ | 33½-37 | 35½-39 | 33-34½ |
| Nearby and Midwestern White Exchange Specials | 32¾-33 | 33 | 33 | 34½ | 32-32½ |
| Pacific Coast Specials | 39½ | 39¼-39½ | 39-39½ | 39¼-39½ | 37-37½ |
| Nearby and Midwestern Brown Specials | 32¾ | 32¼ | 32¼ | 33½ | 30 |

Prices received by farmers for eggs in mid-May were the highest for the month since 1920. They averaged 26.5 cents per dozen compared with 20.1 cents a year ago and 15.4 cents, the 10-year (1931-40) average. Chicken prices were the highest for May since 1930. They averaged 18.4 cents per pound live weight compared with 16.2 cents a year ago and 14.0 cents, the 10-year average. Mid-May prices received for turkeys at 19.1 cents per pound live weight were the highest for the month in 10 years of record and compare with 15.4 cents a year ago. Although the average cost of feed in a farm poultry ration at mid-May prices was 31 per cent higher than a year earlier, the egg-feed ratio was slightly more favorable than in May 1941 because of higher egg prices.

A steady to firm tone was maintained in egg markets during June, the U. S. Department of Agriculture reports. Except for a temporary lull toward the middle of the month, market sentiment leaned toward the up trend, although buying support was sufficient to raise prices only slightly. The temporary slowing up of demand was attributed in part to a falling off of quality in eggs arriving currently from sections where warmer weather had prevailed. On the other hand, lighter receipts at terminal markets had the effect of changing the supply situation, and the month closed with price trend somewhat uncertain, but apparently tending slowly upward.

At New York, Firsts closed a half cent higher than on June 1, with better grades of nearbys 2 to 3 cents higher. Pacific Coast eggs at New York showed very little change during the month, although in Pacific Coast markets proper, prices made net gains of 2 to 3 cents per dozen. Failure of this class of eggs to make similar gains at New York appeared due in part to their relatively high price level as compared with other eggs available in the market.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Government Purchases

Purchases by AMA have been principally dried eggs. Weekly purchases during the first half of June averaged 4¼ million pounds, but were increased the last half of the month to the extent of raising the weekly average for the entire month to about 5½ million pounds. An earlier announcement of the AMA pertaining to the purchase of dried egg products has recently been amended to invite offers later than June 30. Offers may be submitted to reach Washington not later than noon, July 1, and each Wednesday thereafter until further notice.

–Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Purchases of Eggs and Poultry Products by the U. S. D. A.**

| Week Ending | Shell Eggs | Dried Eggs |
|---|---|---|
| | Cases | 1,000 lbs. |
| June 6 | 2,333 | 4,503 |
| June 13 | 14,308 | 4,017 |
| June 20 | 1,174 | 6,916 |
| June 27 | 507 | 6,764 |
| 1942 Total to June 27 | 448,920 | 161,141 |

## Eggs in Storage

Shell eggs in cold storage on June 1 totaled 6,904,000 cases, which was about 1½ million cases more than a year earlier. Into-storage movements continued during June, but the net increase in the 35 cities for which weekly storage reports are available is less than that which occurred in June 1941. On a percentage basis, 35 cities stocks increased 15 per cent during the 4 weeks ending June 27, whereas in the corresponding period of last year the increase was 21 per cent. Nevertheless, stocks in the 35 cities at the close of June are about 15 per cent greater than a year ago.

Storage stocks of frozen eggs on June 1 were 223 million pounds, a increase of 55 per cent over the stocks of June 1, 1941. An increase of abo 24 per cent occurred in the 35 cities during the 4 weeks ending June 2 Last year's increase during the corresponding period was 36 per cent, b stocks were much lighter then than now, so that the actual volume increa this year is greater. The increases in the 35 cities stocks over those of la year were 65 per cent at the close of May, and 50 per cent at the close June.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Storage Holdings of Eggs**

| Kind | June 1 5-Yr. Avg. 1937-41 | June 1 1941 | May 1 1942 | June 1 1942 | % Chang June '41-June ' |
|---|---|---|---|---|---|
| | | Thousands | | | |
| Shell Eggs (cases) | | | | | |
| SMA and FSCC | | 415 | 56 | 37 | –81.0 |
| Commercial | 5,780 | 4,960 | 4,582 | 6,867 | +38.4 |
| Total | 5,927 | 5,375 | 4,638 | 6,904 | +28.4 |
| Frozen Eggs (lbs.) | | | | | |
| SMA and FSCC | | | 6,637 | 6,900 | |
| Commercial | | | 152,948 | 216,416 | |
| Total | 129,552 | 142,065 | 159,585 | 223,316 | +68.4 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 3,455 | 3,788 | 4,256 | 5,955 | +67.2 |
| Total (cases) | 9,382 | 9,163 | 8,894 | 12,859 | +40.3 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

## Poultry Meat Prices

Prices of most classes of live poultry showed some tendency to declin during June. The exception to this was chickens, for this class of stock ha been in relatively lighter supply than other classes. One result of this wa that prices of chickens in eastern markets advanced 1 to 2 cents. Prices practically all classes of poultry are higher than a year ago, but not uni formily so. Fowl prices are about 2 cents higher, but advances on chicken and younger stock are from 6 to 7 cents.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Poultry in Storage

U. S. stocks of frozen poultry on June 1 totaled 80 million pounds. A year earlier, storages held 87½ million pounds. In the 35 cities, there has been relatively little change since June 1 in the amount of poultry in storage. The net change during the four weeks ending June 27 was an increase of 304,000 pounds. During the corresponding period last year, the change was an increase of 2¼ million pounds.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**Storage Holdings of Poultry**

| Kind | June 1 5-Yr. Avg. 1937-41 | June 1 1941 | May 1 1942 | June 1 1942 | % Change June '41-June '42 |
|---|---|---|---|---|---|
| | | Thousand Pounds | | | |
| Broilers | 5,493 | 4,285 | 5,712 | 3,755 | –12.4 |
| Fryers | 4,045 | 4,277 | 5,123 | 2,664 | –37.8 |
| Roasters | 10,627 | 14,052 | 15,814 | 8,729 | –37.9 |
| Fowls | 12,163 | 14,944 | 17,668 | 14,787 | – 1.1 |
| Turkeys | 25,216 | 30,427 | 35,455 | 31,394 | + 3.1 |
| Ducks | 2,879 | 3,549 | 1,370 | 2,535 | –28.6 |
| Miscellaneous | 12,683 | 10,072 | 10,328 | 11,585 | +14.0 |
| Unclassified | | 5,827 | 5,246 | 4,693 | –19.5 |
| Total | 73,106 | 87,433 | 96,716 | 80,142 | – 8.4 |

## Egg Breaking Operations

Commercial egg breaking plants during May produced 95,233,000 pounds of liquid eggs, which was larger than the production during May last year by 36,878,000 pounds or 58 per cent. Of the total production, 57,090,000 pounds were frozen, compared with 53,303,000 pounds in May last year, and 3,714,000 pounds were used for immediate consumption, compared with 2,567,000 pounds a year earlier. From the remaining

**Liquid Egg Production, May 1941-42**

| | | May 1941 | May 1942 | % change in 1942 |
|---|---|---|---|---|
| | | Thousand pounds | | |
| Whole eggs | | 19,724 | 57,330 | +191 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 9,337 | 10,857 | + 16 |
| Egg whites (all descriptions) | | 16,456 | 15,523 | – 6 |
| Egg yolks packed | Without salt, sugar, etc. | 6,711 | 7,333 | + 9 |
| | With sugar | 4,085 | 2,667 | – 35 |
| | With salt | 2,042 | 1,523 | – 25 |
| | All yolk emulsions, including glycerine | | | |
| Total | | 58,355 | 95,233 | + 63 |

### Dried Egg Production, May 1941-42

| Commodity | May 1941 | May 1942 | % change in 1942 |
|---|---|---|---|
| | Pounds | | |
| Whole | 478,450 | 18,253,869 | +3,715 |
| Albumen | 642,399 | 499,070 | − 22 |
| Yolks | 1,735,888 | 2,216,492 | + 28 |
| Total | 2,856,737 | 20,969,431 | + 634 |
| Firms reporting | 57 | | |

34,429,000 pounds, plus the eggs broken out by strictly egg drying plant 20,969,431 pounds of dried eggs were produced—approximately 38 time the dried egg production in May last year.

The May production of dried egg was 744,927 pounds less than th production in April, reflecting the passing of the peak in shell egg production in April. The present high rate of dried egg production will probably be maintained throughout the remaining months of 1942 by additional drying facilities and the use of storage shell and frozen eggs.

Storage holdings of frozen eggs on June 1 totaled 223,316,000 pounds, the largest of record. Storage holdings of shell eggs on June 1 totaled 6,904,000 cases compared with 5,375,000 cases on June 1, 1941 and the June 1 (1937-41) average of 5,927,000 cases. Reports from all but a few eg dryers showed that 2,818,000 cases of shell and 59,099,000 pounds of froze eggs were ear-marked for drying.

The plants that reported stocks of dried eggs on June 1 showed that out of a total of 18,276,091 pounds, only 1,158,584 pounds remained unsold. The Agricultural Marketing Administration accepted offers on 27,360,690 pounds of dried eggs in May. Offers accepted June 1 to June 18, totaled 15,435,860 pounds. Since the first of the year, the government has accepted offers on 154,988,470 pounds of dried egg.

## Hatchery Operations

Commercial hatcheries in May produced 244,062,000 chicks, a new high record for the month—9 per cent above the previous May high established last year. Hatcheries in the first five months of this year have produced 911,596,000 chicks compared with 784,933,000 during the same period last year—an increase of 126,663,000 chicks or 16 per cent.

Increases in the number of chicks hatched were reported in all sections of the country, ranging from 4 per cent in the South Atlantic States and East North Central States to 31 per cent in the South Central States.

### Chicks Hatched by Commercial Hatcheries

| Geographic Division | May 1939 | May 1940 | May 1941 | May 1942 | % chg. from May 1941 | Jan.-May Inc. 1941 | Jan.-May Inc. 1942 | % chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 5,745 | 5,118 | 7,339 | 9,090 | +23 | 42,069 | 47,126 | +12 |
| Middle Atlantic | 14,863 | 12,982 | 14,263 | 15,396 | + 8 | 65,381 | 73,972 | +13 |
| South Atlantic | 11,318 | 11,956 | 16,256 | 16,952 | + 4 | 71,773 | 78,838 | +10 |
| E. N. Central | 64,968 | 61,734 | 74,540 | 77,175 | + 4 | 218,889 | 241,434 | +10 |
| W. N. Central | 79,594 | 69,553 | 87,062 | 95,006 | + 9 | 239,411 | 299,414 | +25 |
| South Central | 10,797 | 10,314 | 15,057 | 19,799 | +31 | 89,875 | 109,252 | +22 |
| Mountain | 3,899 | 2,699 | 3,158 | 3,312 | + 5 | 14,617 | 14,634 | — |
| Pacific | 7,096 | 4,219 | 6,572 | 7,332 | +12 | 42,918 | 46,926 | + 9 |
| U. S. | 198,280 | 178,575 | 224,247 | 244,062 | + 9 | 784,933 | 911,596 | +16 |

The number of eggs set in May was 5 per cent larger than the number set in May 1941. All sections of the country reported increases with the exception of the Pacific Coast States, where a decrease of 4 per cent was reported. The largest increases of 27 per cent and 16 per cent occurred in the South Central and New England States, respectively. Other increases ranged from 2 per cent in the Mountain States and East North Central States to 10 per cent in the Middle Atlantic States.

There is considerable evidence that the big demand for chicks is over and that the hatch in June may not be as large as the big hatch in June 1941. This is to be expected in view of the very large early hatch this year. The 5 per cent May increase in number of eggs set, compared with a 9 per cent increase reported for the first two weeks of May, indicates that settings during the latter part of the month were falling more rapidly than last season. On June 1, the number of chicks booked was 1 per cent less than last year. Quite a few hatcheries reported in May an abrupt reduction in the demand for chicks and are closing for the season.

### Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

| Geographic Divisions | Chicks booked May 1 | % Light breed hatched | | % Heavy breed hatched | | Sexing |
|---|---|---|---|---|---|---|
| | % change from June 1, 1941 | May 1941 | May 1942 | May 1941 | May 1942 | % change from May 1941 |
| New England | +16 | 5 | 9 | 95 | 91 | +122 |
| Middle Atlantic | +61 | 34 | 35 | 66 | 65 | + 39 |
| South Atlantic | +10 | 10 | 12 | 90 | 88 | − 1 |
| E. N. Central | −17 | 30 | 34 | 70 | 66 | + 18 |
| W. N. Central | −28 | 45 | 49 | 55 | 51 | + 38 |
| South Central | + 7 | 22 | 27 | 78 | 73 | − 12 |
| Mountain | −17 | 41 | 43 | 59 | 57 | + 16 |
| Pacific | − 9 | 61 | 59 | 39 | 41 | + 31 |
| U. S. | − 1 | 32 | 35 | 68 | 65 | + 30 |

The proportion of light and heavy breeds hatched in May indicated an increased demand for the light breeds. Hatcheries reported 35 per cent of all chicks hatched in May were of the light breeds and 65 per cent were of the heavy breeds compared with 32 per cent light breeds and 68 per cent heavy breeds in May last year. The number of chicks sexed was 3 per cent larger than in May 1941.

Reports from 104 hatcheries on turkey operations in May showed 3 per cent less turkey eggs set and 9 per cent more poults hatched compared with May 1941. Orders for poults on June 1 showed a decrease of 25 per cent from the same date last year.

—Comment from the U. S. D. A. Hatchery Production Report.

# *Eggs Should Be Sold by Weight*

If you owed a man $1.00 would you pay him $1.50 to cancel the debt? He would no doubt be glad to receive the $1.50 but would think you were a little "touched in the head." Yet that is what Mr. Poultryman does every day. Sixteen ounces is the standard weight of a dozen small eggs, 20 ounces is the standard weight of a dozen medium eggs, and 23½ ounces is the standard weight of a dozen large eggs. But what about the eggs that fall in the intermediate weights? There is a spread of 4 ounces on the small, 3½ ounces on the mediums, and there is no limit on the large.

If you turn in a dozen small eggs that weigh 19½ ounces when 16 ounces will do, or a dozen mediums weighing 23¼ ounces when 20 ounces will do, and a dozen large that weigh 27½ ounces when 23½ would do, then you are paying the man a $1.50 to cancel the $1.00 debt. If you keep on doing it knowingly and do nothing about it, well then you must be a little "touched in the head" too.

Why give away 3½ ounces of small eggs, 3¼ ounces of medium eggs, and 4 ounces of large eggs when it costs you money to produce them? Is there such a margin of profit in this business that it can stand all the natural losses, and then give away part of the finished product? No, you bet your life there isn't.

Now let us see how this works out in a specific case. Let us suppose you have three cases of eggs; 30 dozen grade A large, 30 dozen grade medium, and 30 dozen grade small. The price of eggs, we will say is 35¼ cents per dozen for large, 3 cents for mediums, and 24 cents for small, and that figures 1½ cents per ounce. For 30 dozen large at 35¼ cents per dozen you would receive $10.58. For 30 dozen medium at 30 cents per dozen you would receive $9.00. For the 30 dozen small at 24 cents per dozen you would receive $7.20. The total for the 90 dozen would be $26.78. This would be the correct payment if all large weighed exactly 23½ ounces, mediums 20 ounces and small 16 ounces to the dozen. No allowance is made for the overweight. This is selling eggs by our present method, by the dozen.

Now let us see how it figures out by weight. In order to make an outstanding difference we will say that the large average 27½ ounces to the dozen or 4 ounces overweight, the mediums 23¼ ounces to dozen or 3¼ ounces overweight, and the small 19¾ ounces per dozen or 3¾ ounces overweight. If these same eggs were sold by weight, the 30 dozen large at 27½ ounces per dozen would weigh 825 ounces and at 1½ cents per ounce you would receive $12.38. The 30 dozen mediums weighing 23¼ ounces per dozen would weigh a total of 697½ ounces. At 1½ cents per ounce you would receive $10.46. For the 30 dozen small weighing 19¾ ounces per dozen, a total of 592½ ounces at 1½ cents per ounce would give you $8.90, for a total of $31.74 for your 90 dozen eggs if sold by weight. Balance this against the $26.78 received when the 90 dozen were sold by the dozen and there is a difference of $4.97 on three cases of eggs, or $14.91 on three cases of large, medium, and small.

If you say that your eggs never average that heavy, we'll cut it in half and you still have an extra profit of $2.49 on three cases.

How is this going to be accomplished? It can be done with practically no changes. Eggs could be graded into large, medium, and small at the ranch, at the co-op, or by your egg buyer. After the eggs had been graded or sized, they would be weighed. As in the case just cited, instead of saying 30 large your report would show 30 dozen large—825 ounces at 1½ cents per ounce—$12.38. Instead of 30 dozen mediums it would show 30 dozen medium—697½ ounces at 1½ cents per ounce — $10.46, and the small would show 30 dozen small—592½ ounces at 1½ cents per ounce—$8.90, a total of $31.74.

The only change in the present procedure is that the eggs are weighed when they are sold to the egg buyer, the wholesaler, or the consumer, and that the eggs are sold by weight. They would still be packed in cartons of 12 (dozens) and graded large, medium, and small. The prices would still be quoted the same as they are now, only when sold the eggs would be weighed and the exact weight paid for. That would make it easier in packing as the carton could run any weight within the grade.

—Alfred Williams, Jr., San Diego Poultry Journal, July, 1942.

# RESULTS OF LAYING TESTS

Standings among leading pens in the various laying tests changed radically during May. On June 1, Harco Orchards' Rhode Island Reds had dropped to fourth place, with Holser's Valley Farm's White Leghorns moving up from third to first place among all pens in the country.

Top position is not new to this Holser pen, for it held first place on February 1 and March 1.

W. H. Wilson's Red entry at the Georgia test continues to hold down second place among all pens, and Hillview Poultry Farm's Reds at California moved up to third place during the month.

Throughout most of the tests, the White Leghorns advanced their positions during May. Seventeen of the twenty high pens for the month were Leghorns, with but eight Le horn pens among the top 20 o May 1.

Harco Orchards Reds hold th first two positions in individu competition, with a J. A. Hanso Leghorn at the Storrs test movin into third place on June 1.

High pen among all entries in th country for the month of May wa a Bodine Pedigreed Leghorn entr at Central New York. Another Leg horn pen, owned by J. A. Hanson at the Western New York test, wa second high for the month.

Competition between contests i becoming increasingly keen. Arizon continues to hold onto first place but several other tests are withi striking distance as the 1941-42 tests go into the ninth month.

## Twenty High Pens, All Breeds, to June 1—(243 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Holser's Valley Farm | White Leghorn | 2635 | 2807.05 | Storrs |
| W. H. Wilson | Rhode Island Red | 2624 | 2801.85 | Georgia |
| Hillview Poultry Farm | Rhode Island Red | 2710 | 2797.00 | California |
| Harco Orchards | Rhode Island Red | 2569 | 2778.00 | Rhode Island |
| Crooks Farm | Rhode Island Red | 2628 | 2768.25 | Pennsylvania |
| Kauder's Pedigreed Leghorns | White Leghorn | 2515 | 2731.30 | Texas |
| J. A. Hanson | White Leghorn | 2610 | 2730.65 | Georgia |
| Foreman Poultry Farm | White Leghorn | 2532 | 2722.00 | Missouri |
| Thomas H. Mettler | Rhode Island Red | 2774 | 2721.95 | Storrs |
| Ford's Riverbank Farm | Rhode Island Red | 2622 | 2720.55 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 2551 | 2711.95 | Storrs |
| C. C. Hersey | Rhode Island Red | 2612 | 2701.25 | Storrs |
| Babcock's Hatchery | White Leghorn | 2687 | 2698.30 | Pennsylvania |
| Joachim Breeding Farm | New Hampshire | 2552 | 2697.45 | Storrs |
| J. A. Hanson | White Leghorn | 2548 | 2695.10 | Western New York |
| Peckham Farm | Rhode Island Red | 2532 | 2675.85 | Rhode Island |
| George A. Pearce | New Hampshire | 2539 | 2674.50 | Hunterdon, N. J. |
| J. A. Hanson | White Leghorn | 2518 | 2668.05 | Pennsylvania |
| W. H. Wilson | Rhode Island Red | 2558 | 2658.15 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 2464 | 2656.45 | Georgia |

## High Pen in Each Test to June 1—(243 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Holser's Valley Farm | White Leghorn | 2635 | 2807.05 | Storrs |
| W. H. Wilson | Rhode Island Red | 2624 | 2801.85 | Georgia |
| Hillview Poultry Farm | Rhode Island Red | 2710 | 2797.00 | California |
| Harco Orchards | Rhode Island Red | 2569 | 2778.00 | Rhode Island |
| Crooks Farm | Rhode Island Red | 2628 | 2768.25 | Pennsylvania |
| Kauder's Pedigreed Leghorns | White Leghorn | 2515 | 2731.30 | Texas |
| Foreman Poultry Farm | White Leghorn | 2532 | 2722.00 | Missouri |
| J. A. Hanson | White Leghorn | 2548 | 2695.10 | Western New York |
| George A. Pearce | New Hampshire | 2539 | 2674.50 | Hunterdon, N. J. |
| G. B. Treadwell | Rhode Island Red | 2535 | 2638.50 | Maine |
| E. B. Parmenter | Rhode Island Red | 2509 | 2597.70 | Passaic, N. J. |
| Gold Spot Hatchery | White Leghorn | 2417 | 2549.35 | Arizona |
| Creighton Brothers | White Leghorn | 2400 | 2424.25 | Florida |
| Foreman Poultry Farm | White Leghorn | 2282 | 2410.90 | Central New York |
| J. J. Warren | Rhode Island Red | 2254 | 2338.60 | Michigan |
| Foreman Poultry Farm | White Leghorn | 2401 | 2316.35 | Oklahoma |
| Crooks Farm | Rhode Island Red | 2195 | 2259.75 | Long Island |

## High Pen in Each Test for May

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Bodine's Pedigreed Leghorns | White Leghorn | 354 | 380.50 | Central New York |
| J. A. Hanson | White Leghorn | 349 | 380.20 | Western New York |
| Hillview Poultry Farm | Rhode Island Red | 362 | 378.90 | California |
| Lindstrom Poultry Farm | White Leghorn | 342 | 374.75 | Missouri |
| Holser's Valley Farm | White Leghorn | 334 | 363.65 | Storrs |
| Babcock's Hatchery | White Leghorn | 340 | 361.60 | Pennsylvania |
| G. B. Treadwell | Rhode Island Red | 332 | 355.95 | Maine |
| Kauder's Pedigreed Leghorns | White Leghorn | 324 | 355.15 | Texas |
| Lux Leghorn Land Farm | White Leghorn | 335 | 354.75 | Florida |
| Holser's Valley Farm | White Leghorn | 338 | 350.25 | Passaic, N. J. |
| Sunrise Poultry Farm | White Leghorn | 331 | 346.70 | Michigan |
| J. A. Hanson | White Leghorn | 323 | 344.00 | Georgia |
| Foreman Poultry Farm | White Leghorn | 341 | 343.40 | Arizona |
| Holser's Valley Farm | White Leghorn | 313 | 341.60 | Rhode Island |
| Robert Chapman | Rhode Island Red | 337 | 336.00 | Oklahoma |
| Foreman Poultry Farm | White Leghorn | 318 | 334.45 | Long Island |
| Rapp's Poultry Farm | White Leghorn | 302 | 330.45 | Hunterdon, N. J. |

## High Pen in Each Breed to June 1—(243 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Holser's Valley Farm | White Leghorn | 2635 | 2807.05 | Storrs |
| W. H. Wilson | Rhode Island Red | 2624 | 2801.85 | Georgia |
| Joachim Breeding Farm | New Hampshire | 2552 | 2697.45 | Storrs |
| Dryden Poultry Breeding Farm | Barred Rock | 2491 | 2555.15 | Storrs |
| Riley Poultry Farm | White Rock | 2302 | 2319.20 | Storrs |
| Harvey E. Taylor | White Wyandotte | 2140 | 2225.75 | Texas |
| Ernest Pedigo | Australorp | 2025 | 2130.90 | Arizona |
| Raymond S. Thomas | Ancona | 1886 | 1939.55 | Pennsylvania |
| Harry L. Phillips | Columbian Rock | 1803 | 1937.90 | Missouri |
| T. D. Brown | White Minorca | 1840 | 1933.15 | Texas |
| Imperial Breeding Farm | White Giant | 1872 | 1920.60 | Maine |
| Horne's Hatchery | Black Minorca | 1761 | 1916.05 | Texas |
| Maine Test | Cross | 1671 | 1716.30 | Maine |
| Imperial Breed. Farm | New Hampshire White | 1556 | 1670.55 | Missouri |
| Miami Chick Hatchery | Buff Rock | 1611 | 1623.75 | Michigan |
| Iowa Master Breeders | Buff Orpington | 1624 | 1530.00 | Texas |
| Charles A. Richardson | Buff Leghorn | 1509 | 1403.60 | Hunterdon, N. J. |
| Henry F. Waitt | Buff Minorca | 1417 | 1396.90 | Maine |
| Wellington Wells | Silver Laced Wyandotte | 1378 | 1265.85 | Maine |
| F. G. Romance | Partridge Plymouth Rock | 1152 | 1119.10 | Florida |
| Philip Maddux | Black Leghorn | 1136 | 1057.70 | Long Island |

## High Hen in Each Breed to June 1—(243 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 235 | 258.25 | Maine |
| J. A. Hanson | White Leghorn | 238 | 249.30 | Storrs |
| Robert C. Cobb | Barred Rock | 230 | 244.35 | Storrs |
| George A. Pearce | New Hampshire | 234 | 239.70 | Hunterdon, N. J. |
| Raymond S. Thomas | Ancona | 203 | 222.15 | Pennsylvania |
| Paul Hansen | Australorp | 205 | 220.75 | California |
| Carter-Dunham | White Rock | 197 | 214.10 | Georgia |
| Harvey E. Taylor | White Wyandotte | 197 | 213.10 | Texas |
| Maine Test | Cross | 188 | 198.95 | Maine |
| Imperial Breeding Farm | White Giant | 184 | 198.65 | Maine |
| Harry L. Phillips | Columbian Rock | 183 | 195.90 | Missouri |
| Imperial Breed. Farm | New Hampshire White | 176 | 190.85 | Missouri |
| Horne's Hatchery | Black Minorca | 171 | 184.40 | Texas |
| T. D. Brown | White Minorca | 169 | 180.10 | Texas |
| Miami Chick Hatchery | Buff Rock | 168 | 179.45 | Michigan |
| Iowa Master Breeders | Buff Orpington | 170 | 172.75 | Texas |
| Henry F. Waitt | Buff Minorca | 174 | 160.45 | Maine |
| C. A. Richardson | Buff Leghorn | 159 | 151.35 | Hunterdon, N. J. |
| Donald Chandler | Silver Laced Wyandotte | 154 | 144.90 | Maine |
| Philip Maddux | Black Leghorn | 143 | 133.30 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 113 | 110.65 | Florida |

## High Hen in Each Test to June 1—(243 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 235 | 258.25 | Maine |
| Harco Orchards | Rhode Island Red | 230 | 252.00 | Rhode Island |
| J. A. Hanson | White Leghorn | 238 | 249.30 | Storrs |
| Rinker Poultry Farm | White Leghorn | 229 | 248.65 | Pennsylvania |
| Bagby Poultry Farm | Rhode Island Red | 226 | 243.55 | Arizona |
| Foreman Poultry Farm | White Leghorn | 229 | 243.15 | Missouri |
| Holser's Valley Farm | White Leghorn | 223 | 242.80 | Georgia |
| Charles D. Deisher | White Leghorn | 231 | 241.65 | Texas |
| J. A. Hanson | White Leghorn | 228 | 240.55 | Western New York |
| J. J. Warren | Rhode Island Red | 226 | 240.55 | California |
| George A. Pearce | New Hampshire | 234 | 239.70 | Hunterdon, N. J. |
| Alampi Poultry Farm | Rhode Island Red | 218 | 239.55 | Passaic, N. J. |
| J. K. Bedell | White Leghorn | 224 | 235.95 | Florida |
| Foreman Poultry Farm | White Leghorn | 212 | 232.10 | Central New York |
| Foreman Poultry Farm | White Leghorn | 222 | 226.25 | Oklahoma |
| Aseltine Poultry Farm | Rhode Island Red | 220 | 224.55 | Michigan |
| E. B. Parmenter | Rhode Island Red | 205 | 222.75 | Long Island |

## Twenty High White Leghorn Pens to June 1—(243 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Holser's Valley Farm | 2635 | 2807.05 | Storrs |
| Kauder's Pedigreed Leghorns | 2515 | 2731.30 | Texas |
| J. A. Hanson | 2610 | 2730.65 | Georgia |
| Foreman Poultry Farm | 2532 | 2722.00 | Missouri |
| Kauder's Pedigreed Leghorns | 2551 | 2711.95 | Storrs |
| Babcock's Hatchery | 2687 | 2698.30 | Pennsylvania |
| J. A. Hanson | 2548 | 2695.10 | Western New York |
| J. A. Hanson | 2518 | 2668.05 | Pennsylvania |
| Kauder's Pedigreed Leghorns | 2464 | 2656.45 | Georgia |
| J. A. Hanson | 2510 | 2622.80 | Storrs |
| Burr's Poultry Farm | 2528 | 2612.35 | Pennsylvania |
| W. A. Seidel | 2464 | 2599.35 | Texas |
| Rapp's Poultry Farm | 2430 | 2578.00 | Hunterdon, N. J. |
| W. A. Seidel | 2454 | 2565.45 | Texas |
| Jack O'Harrow | 2479 | 2564.25 | Texas |
| Kauder's Pedigreed Leghorns | 2376 | 2560.35 | Pennsylvania |
| Gold Spot Hatchery | 2417 | 2549.35 | Arizona |
| George M. Anthony | 2478 | 2547.40 | Pennsylvania |
| Foreman Poultry Farm | 2446 | 2539.80 | Storrs |
| Babcock's Hatchery | 2526 | 2530.90 | Georgia |

## Twenty High Rhode Island Red Pens to June 1—(243 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| W. H. Wilson | 2624 | 2801.85 | Georgia |
| Hillview Poultry Farm | 2710 | 2797.00 | California |
| Harco Orchards | 2569 | 2778.00 | Rhode Island |
| Crooks Farm | 2628 | 2768.25 | Pennsylvania |
| Thomas H. Mettler | 2774 | 2721.95 | Storrs |
| Ford's Riverbank Farm | 2622 | 2720.55 | Storrs |
| C. C. Hersey | 2612 | 2701.25 | Storrs |
| Peckham Farm | 2532 | 2675.85 | Rhode Island |
| W. H. Wilson | 2558 | 2658.15 | Georgia |
| Crooks Farm | 2517 | 2651.75 | Storrs |
| G. B. Treadwell | 2535 | 2638.50 | Maine |
| J. J. Warren | 2446 | 2630.25 | Rhode Island |
| J. J. Warren | 2447 | 2615.50 | Maine |
| To-Lani Farm | 2502 | 2607.15 | Georgia |
| Harco Orchards | 2414 | 2602.00 | Storrs |
| E. B. Parmenter | 2509 | 2597.70 | Passaic, N. J. |
| Robert C. Cobb | 2490 | 2584.35 | Storrs |
| Crooks Farm | 2449 | 2566.20 | Storrs |
| E. B. Parmenter | 2364 | 2544.25 | Storrs |
| G. B. Treadwell | 2477 | 2543.55 | Storrs |

## Twenty High New Hampshire Pens to June 1—(243 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Joachim Breeding Farm | 2552 | 2697.45 | Storrs |
| George A. Pearce | 2539 | 2674.50 | Hunterdon, N. J. |
| George A. Pearce | 2413 | 2524.35 | Storrs |
| Joachim Breeding Farm | 2353 | 2483.55 | Hunterdon, N. J. |
| W. G. Ashby | 2213 | 2382.85 | Arizona |
| James H. Horne | 2255 | 2380.40 | Storrs |
| Hubbard Farms | 2271 | 2362.40 | Western New York |
| Del Rio Farm | 2202 | 2354.90 | Arizona |
| Crescent Farms | 2217 | 2345.50 | Florida |
| Joachim Breeding Farm | 2284 | 2336.10 | Pennsylvania |
| Howard Breeding Farm | 2195 | 2333.10 | California |
| Ebenwood Farm | 2179 | 2330.05 | Rhode Island |
| Hubbard Farms | 2275 | 2326.95 | Georgia |
| Hubbard Farms | 2268 | 2313.80 | Pennsylvania |
| Fairport Hatchery | 2232 | 2292.45 | Western New York |
| Forest Hill Poultry Farm | 2204 | 2284.10 | Storrs |
| Hubbard Farms | 2190 | 2275.40 | Storrs |
| Clarence E. Colby | 2174 | 2267.75 | Storrs |
| Pine Mountain Valley Farms | 2189 | 2255.90 | Georgia |
| Del Rio Farm | 2103 | 2247.60 | Arizona |

## Twenty High Barred Plymouth Rock Pens to June 1—(243 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 2491 | 2555.15 | Storrs |
| Dryden Poultry Breeding Farm | 2513 | 2520.30 | Pennsylvania |
| Dryden Poultry Breeding Farm | 2404 | 2483.30 | Storrs |
| Harco Orchards | 2513 | 2432.50 | Maine |
| J. W. Schaible | 2432 | 2417.30 | Hunterdon, N. J. |
| Dryden Poultry Breeding Farm | 2351 | 2385.40 | California |
| Foster Jameson | 2228 | 2352.75 | Maine |
| Norman Amidon | 2291 | 2341.25 | Maine |
| A. J. Urquhart | 2266 | 2287.55 | Maine |
| Harco Orchards | 2166 | 2272.55 | Storrs |
| Hockhockson Farm | 2164 | 2271.15 | Hunterdon, N. J. |
| Penn's Poultry Breeding Farm | 2239 | 2269.25 | Texas |
| Peachblow Farm | 2212 | 2257.30 | Maine |
| Harco Orchards | 2125 | 2228.55 | Rhode Island |
| Fisher Orchards | 2090 | 2224.40 | Pennsylvania |
| Vincent Nasto | 2207 | 2203.85 | Hunterdon, N. J. |
| J. W. Schaible | 2274 | 2193.75 | Passaic, N. J. |
| A. J. Urquhart | 2151 | 2193.40 | Passaic, N. J. |
| Ox-Pond Farm | 2114 | 2189.10 | Storrs |
| Riley Poultry Farm | 2207 | 2186.70 | Georgia |

## Twenty High White Plymouth Rock Pens to June 1—(243 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Riley Poultry Farm | 2302 | 2319.20 | Storrs |
| Bagby Poultry Farm | 2160 | 2290.10 | Texas |
| Missouri Valley Poultry Farm | 2137 | 2265.10 | Texas |
| Missouri Valley Hatchery | 2194 | 2238.90 | Georgia |
| Ralph De Young | 2123 | 2188.45 | Maine |
| Riley Poultry Farm | 2166 | 2183.45 | Georgia |
| Four Winds Farm | 2104 | 2174.00 | Michigan |
| Carter-Dunham | 1927 | 2061.30 | Texas |
| Carter-Dunham | 1925 | 2053.10 | Georgia |
| Albert C. Lawton | 1940 | 2020.20 | Storrs |
| Imperial Breeding Farm | 2036 | 2014.40 | Storrs |
| Booth Poultry Farm | 1887 | 2006.05 | Missouri |
| Holtzapple Poultry Farm | 1935 | 1998.70 | Pennsylvania |
| Inspiration Acres | 2073 | 1994.00 | Florida |
| Booth Farms and Hatchery | 1897 | 1966.40 | Texas |
| Superior Hatchery | 1905 | 1957.10 | Texas |
| Albert C. Lawton | 1903 | 1946.30 | Rhode Island |
| Kerr Chickeries | 1884 | 1938.65 | Hunterdon, N. J. |
| Holtzapple Poultry Farm | 1907 | 1938.00 | Georgia |
| St. Paul Hatchery | 1870 | 1928.60 | Florida |

## Average Production and Mortality, Each Test, to June 1—(243 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for May | Per Cen Mortalit to Date |
|---|---|---|---|---|---|---|
| Arizona | 390 | 160.14 | 168.37 | 25.02 | 2.30 | 11.80 |
| Storrs | 1,352 | 158.64 | 163.62 | 24.62 | 2.29 | 9.99 |
| Pennsylvania | 1,105 | 157.92 | 161.44 | 24.44 | 2.17 | 10.32 |
| Rhode Island | 611 | 152.73 | 160.98 | 25.06 | 1.63 | 11.95 |
| Hunterdon, N. J. | 624 | 155.44 | 159.97 | 24.58 | .64 | 9.46 |
| Georgia | 1,326 | 155.02 | 158.29 | 24.42 | 1.74 | 12.00 |
| California | 598 | 150.38 | 154.16 | 24.50 | 2.84 | 10.54 |
| Texas | 1,456 | 147.35 | 152.78 | 24.72 | 1.71 | 10.37 |
| Florida | 1,118 | 146.49 | 150.64 | 24.44 | 1.61 | 10.02 |
| Western New York | 975 | 140.87 | 148.20 | 25.04 | 1.33 | 8.72 |
| Passaic, N. J. | 871 | 143.78 | 147.65 | 24.54 | 1.61 | 12.52 |
| Maine | 988 | 142.79 | 144.42 | 24.22 | 1.62 | 8.91 |
| Missouri | 780 | 127.85 | 136.62 | 25.34 | 2.56 | 12.18 |
| Central New York | 1,066 | 129.97 | 134.90 | 24.74 | 1.58 | 9.39 |
| Oklahoma | 650 | 131.76 | 132.52 | 24.10 | 1.69 | 11.08 |
| Long Island | 1,092 | 127.52 | 128.01 | 24.06 | 2.49 | 11.64 |
| Michigan | 871 | 124.87 | 125.46 | 24.06 | 2.18 | 16.54 |
| All Tests | 15,873 | 144.32 | 148.70 | 24.58 | 1.88 | 11.02 |

## *Other Possible Sources of Vitamin A*

If present sources of vitamin A for poultry feeds should be extremely curtailed, an important problem of poultrymen would be that of increasing production of the best sources of carotene and developing new sources. At present, the best sources of carotene are alfalfa and cereal grasses. Other possible source are sweet potatoes, sweet potat vines, carrots, pea and bean vine

Experimentally, sweet potatoe have been sliced and dried to make a product of high carotene conten that retains its vitamin A potenc even when stored for long period

—U. S. D. A. News Release, June 17, 194

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NATIONAL

# POULTRY DIGEST

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Vol. 4, No. ~~42~~ 44 August 15, 1942

## Eggs Laws that Hinder the War Effort

By E. L. BURTIS
U. S. Department of Agriculture

*Transcript of a Talk*

FARMERS have been asked to produce more eggs as a part of the Food for Freedom campaign. A few states, however, have laws and regulations that tend to hinder achievement of this goal. Several instances have occurred in which the interference was direct and obvious.

All laws and regulations which make it unnecessarily difficult to market eggs across state lines hamper the war effort, because they tend to discourage farmers from producing more eggs. If a state requires farmers and dealers in other states to comply with unnecessary regulations and requirements in shipping eggs into the state, they will tend to market less in the state. In other words, the regulations and requirements will, in effect, restrict the market for out-of-state eggs. A restricted market means a lower price, and a lower price means a smaller output of eggs. In brief, hindrances to the movement of eggs across state lines discourage production of eggs by farmers who stand ready to expand egg production.

### Discriminatory Labeling

A few states have enacted labeling regulations that differentiate between eggs produced within the state and eggs produced in other states and that often leave an implication that the out-of-state eggs are

From, "Egg Laws and Regulations that Interfere with the War Effort"
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inferior. For example, one state requires out-of-state eggs to be labeled "shipped," while in many instances eggs brought in across the state border may travel a shorter distance before they are sold than eggs produced and sold within the state. Another state puts eggs produced in foreign countries and those produced in other states in the same category, requiring them to be labeled either "foreign eggs" or to be labeled with the name of the country or state where they were produced. Still another state requires eggs more than five days old to be labeled "held." Few eggs produced outside a state can be carried through marketing channels and marketed within the state in 5 days. Accordingly, this labeling has the effect of placing a stigma on out-of-state eggs.

Any labeling not based on an examination of the quality of the eggs labeled is open to suspicion as having been required with the intent, or as having the effect, of discouraging consumers within the state from buying out-of-state eggs. Required labeling of cold-storage eggs is an example.

Many states require cold-storage eggs to be labeled as such. Twenty-five or 30 years ago, when this requirement was first adopted in several states, there were probably good reasons for it. Cold-storage methods and the handling of eggs in cold storage had not been developed to the point they have reached today. A still more important difference between then and now was the fact that grades based on candling tests had not come into general use. At that time, then, labeling eggs as cold-storage eggs may have served a useful purpose in indicating to consumers a lower quality egg.

Whatever the situation was 25 or 30 years ago, we now have well-developed quality grades based on candling, which serve well to indicate the quality of eggs. On the other hand, cold storage eggs are often superior in quality to recently gathered eggs that have been poorly cared for.

In states where eggs are not produced in so large a quantity as they are consumed, the balance may be expected to be made up in large measure by cold-storage eggs produced in other states. Under such conditions, requiring cold-storage eggs to be so labeled might tend to operate as a barrier to interstate trade. That is, it might influence consumers, through the unfavorable connotation of the term "cold-storage," to buy fewer out-of-state eggs than they would if they were accurately informed of the quality of the eggs.

## Non-Uniformity

Non-uniformity in state grading standards and labeling requirements is a second factor that creates difficulties in marketing eggs across state lines and thereby prevents the national egg industry from producing as efficiently as it would otherwise.

Non-uniformity is especially pronounced in size grades for eggs. According to a compilation made in May 1941, size grades had been established by 25 states, and their use was compulsory in 23 states for part or all of the eggs marketed. But only two of these states had identical grade standards.

Quality grades are more nearly uniform from state to state. Most states, though not all, have modeled their grade standards after the Federal standards. Interpretation of the standards, however, varies from state to state, both because the grade specifications cannot be formulated in completely precise and unambiguous terms and because most states have trained their corps of inspectors independently.

Another sort of non-uniformity deserving of attention is variation in the details of required labeling, such as size and kind of type to be used.

## War Effort Hampered

Any measure that interferes with efficient production and distribution may properly be considered as a hindrance to the war effort. A few laws and regulations, however, have resulted in instances of direct and obvious interference with the war effort.

In one instance, a state assessed an inspection fee against eggs shipped by the Army to a camp located within the state. The fee was levied for an inspection that had not been performed and that was not needed, inasmuch as the Army has its own arrangements for inspection. Plainly, such a fee would add to the cost of the war effort.

Many states require candling of eggs by the first buyer from the producer and often by other dealers, with the purpose of keeping inedible eggs out of commercial channels. A common provision in the laws of these states is to require eggs brought into the state to have been candled before shipment or else to be candled by the first receiver in the state. This provision seems reasonable and necessary for the effective enforcement of a candling law.

However, one state has recently been stopping trucks loaded with eggs destined for egg-drying plants within the state at the border and requiring that the load be accompanied by a candling certificate or certificates, regardless of the fact that the drying plants candle all eggs before using them. With no candling facilities available at the points where the trucks were stopped, many loads of eggs were abandoned and left to rot.

It should be possible to work out some arrangement under which effective enforcement of the state's candling law could be maintained without disruption of the bona-fide commercial movement of eggs into the state to the drying plants, which are filling orders for lend-lease.

The problem of maximum gross weight limits for trucks has already been discussed. In at least one instance, the movement of eggs to drying plants has been affected by lack of uniformity in these limits. Two plants turning out dried eggs for lend-lease are located in a state which imposes a lower maximum gross weight limit on trucks than do adjacent states from which these plants draw part of their supply of eggs. Out-of-state eggs destined for these plants are trucked to the state border in large trucks and then transferred to smaller trucks for the remainder of the journey. The inefficiency and added cost of this transfer are plainly a burden upon the war effort.

Finally, there have been some instances of an interpretation of health and sanitation laws that has not taken sufficiently into account the emergency conditions imposed by the war. A few egg-drying plants that have used wooden vats for fermenting the albumen, and have turned out a clean and satisfactory product, were told they would have to replace the wooden vats with vats of stainless steel. Stainless steel is a critical material and is virtually impossible to obtain for new non-military equipment. The need for dried eggs is so great that all existing capacity must be conserved. Equipment should not be condemned as long as it can turn out a wholesome product.

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## *How to Handle Fowl*

Learning to catch and handle a fowl is an art that should be acquired, for many persons, despite years of association with the industry, show a disregard for a fowl's comfort.

Always catch a fowl with a downward scoop over the back and with a quick forward movement draw it into the left hand, the fowl thus being virtually tripped off its feet.

The correct position for handling is to have the fowl's head pointing over the right elbow, this position permitting the body to lay on the forearm. The right first and second fingers should hold the left leg, and the second and third fingers the right leg. This allows the fowl to lie in a comfortable position without cramping any of the organs. To grasp the fowl's legs tightly together exerts too much pressure upon the abdomen and, in the case of a layer, might easily cause internal injury. Held as stated, with the left hand ready to prevent any struggling, even the wildest fowl can be carried without trouble.

—Canada Poultryman.

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# The Feather Picking Problem

### By W. T. SCOTT

*Condensed from Canadian Poultry Review*

FEATHER picking and cannibalism are not apparent among wild birds under their natural environment. The problem is comparatively recent and entirely peculiar to the intensive system of poultry keeping, where birds are kept in confinement or only allowed access to small yards, and it seems that the cause may reasonably be attributed to errors in feeding.

From their surroundings under natural conditions, when only low seasonal reproduction prevails, fowl may build up sufficient reserve to provide for waste, growth, and heat during the winter.

## Need Green Feed

When they are confined and deprived of their natural feed elements, it is generally recognized that, in addition to their well balanced cereal ration, some form of green feed, either fresh or in concentrated form, is essential to maintain health and high egg production. Compared to the demand for a natural seasonal reproduction, the quantity required by the modern high production hen must be great, as she may reproduce her own body weight in eggs many times in a year.

The "green feeds" commonly used to supply this demand are beets, mangels, cabbage, lettuce, grasses, alfalfa, clovers, and germinated or sprouted cereals. When supplied fresh, some of these "greens" are more or less expensive to grow and hazardous to keep, and whether fed fresh or concentrated they vary greatly in palatability and feeding value.

## Food Value Varies

We can accept as fact that some green feeds are more complete than others when they contain certain elements essential to life and reproduction. Others are only partially complete, that is, sufficient to maintain life under normal conditions and low yields, but fail under the pressure of high production. There are some that are of little or no value. A review of literature discloses considerable information on feeding green concentrates at different levels but only slight reference to the value of succulent green supplements. When offered self selection on good range, however, the appetite of the growing pullet or laying hen appears to be almost without limit.

The importance of green feed

Donovan Publications, 204 Richmond St. West, Toronto, Ontario, Canada
(Canadian Poultry Review, May and June, 1942)

supplements appears to have been treated only casually by most authorities and with a wide divergence of opinion. There are some who conclude that it is of little importance. Others recommend its use but only in limited degree, for fear that too much will seriously cut down the ingestion of the more important cereals and thus reduce egg production. In our experiments we have demonstrated that there may be no fear of overfeeding. On the contrary, the green feed consumption increased with the higher consumption of grains, and greater egg yields followed.

In a previous investigation on 400 pullets, 100 in each pen, with supplements of roots, cabbage, dry alfalfa hay and alfalfa hay that had been run through a cutting box and steeped in cold water overnight, the indications were that roots and cabbage were of little or no value in preventing feather picking, dry alfalfa hay gave some promise, but the steeped alfalfa provided entire immunity.

### Good Alfalfa Necessary

In this instance, no definite measures of feeds and yields were taken as the pens were culled from time to time, but there was a valuable opportunity to study the attitude and appetite. These observations disclosed the extreme preference shown by the birds for a hay of third cutting and good quality. When a poor quality is offered, there is considerable waste, as the hay is scattered in the litter and not eaten. Its value depends to a great extent on the favorable or unfavorable conditions at the time of cutting. When cured under favorable conditions, the feed value is not much lowered by the process. Ideal material is a third cutting about one-third in bloom, dried quickly without long exposure to the elements.

### Finding Cause of Picking

The main object of our first experiment was to determine the cause of feather picking and cannibalism. Was this abnormal disorder just vice, or was it due to some deficiency in feeding? If the former, then the correction should be mechanical, that is, by the use of pick-guards, tinted windows, dying feathers, coal tar, or pared beaks. If errors in feeding were responsible, then the missing factor must be looked for in this direction.

With our early experience to guide us, the first experiment was outlined in 1938, using 200 Barred Plymouth Rock pullets in five pens 16 by 20 feet, 40 birds to each pen.

The green feed supplement fed in addition a tested basal ration in Pen C was a good quality third cutting sun cured alfalfa hay that had been cut to about half-inch lengths. This was steeped over night by covering entirely with cold water, and then thoroughly drained before feeding.

**TABLE 1—Feather condition, egg production, body weight and feed consumption, first test**

| Pen | A<br>No supplement | B<br>No supplement | C<br>Steeped alfalfa | D<br>Dry alfalfa | E<br>Sprouted oats |
|---|---|---|---|---|---|
| Total birds at start | 40 | 40 | 40 | 40 | 40 |
| Mortality (per cent) | 10.0 | 5.0 | 2.5 | 12.5 | 12.5 |
| *Total bird days | 13,684 | 14,226 | 14,500 | 13,332 | 13,704 |
| Total eggs laid | 7,009 | 8,871 | 9,334 | 8,691 | 8,916 |
| **Total weight of eggs per bird (grams) | 10,597 | 12,674 | 13,654 | 13,542 | 13,830 |
| Total scratch grain per bird (grams) | 20,639 | 20,639 | 20,639 | 20,639 | 20,639 |
| Total mash | 19,146 | 22,823 | 22,786 | 21,804 | 15,979 |
| Grams of feed for gram of egg | 3.75 | 3.43 | 3.18 | 3.13 | 2.65 |
| Total grit per bird (ozs.) | 24.1 | 18.8 | 32.2 | 14.7 | 14.0 |
| Total shell per bird (ozs.) | 40.9 | 44.7 | 51.8 | 50.8 | 50.6 |
| Total greens per bird (lbs.)—dry weight | — | — | 15.1 | 10.6 | 29.9 |
| Body weight—gain or loss per bird | −0.19 | +0.34 | +0.60 | +0.62 | +0.54 |
| Feather condition—Good at close | 2.8 | 2.6 | 94.8 | 37.1 | 57.1 |
| Feather condition—Fair at close | 16.6 | 23.7 | 2.6 | 34.1 | 22.9 |
| Feather condition—Poor at close | 80.6 | 73.7 | 2.6 | 28.8 | 20.0 |

*Represents the possible yield if every bird alive laid every day.
**Weight of eggs and not numbers represents the true measure of production.

The supplement in Pen D was alfalfa from the same crop as that fed in Pen C, except that it was fed chopped and dry.

The supplement fed in Pen E was sprouted oats. These were soaked in cold water for 24 hours, drained and allowed to heat in the usual way, spread on trays, and turned and watered twice daily until sprouts were about 4 inches long.

All the supplements were fed twice daily in shallow tubs, and the residue of stalk and stubble left from previous feed was thrown out, thus ensuring a fresh supply and avoiding the risk of crop impaction.

### Feeding Program

Pen A was fed a finely ground mash but no green feed supplement. Pen B was fed a coarse mash but no green feed supplement. Pen C was fed a fine mash and steeped alfalfa hay. Pen D was fed a fine mash and dry alfalfa. Pen E was fed a fine mash and sprouted oats. Scratch grain was fed in a deep litter of wood shavings, 2 ounces daily for each bird. Of this quantity, one-third was fed in the morning and two-thirds at night.

### Recording and Rating Results

All eggs laid were recorded by trapnest collection, and weighed individually to the gram. The loss or gain in body weight was calculated from one individual weighing every four weeks. Feather condition was estimated by observation at each weighing and rated as "poor" if birds had bare necks for at least 2 inches, with some bare areas on the back or breast, "fair" if there were definite indications of picking on neck or saddle, nipped ends of feathers and ruffled plumage, and "good" when there was no evidence of nipped feathers in any section and all plumage was in good glossy and healthy condition.

It has been suggested that feather picking and cannibalism might be the result of confinement and long periods of idleness between feeds. This possibility was exaggerated by providing artificial light all night for the entire 12 months of the experiment.

## Observations During Experiment

Three weeks from the start of the experiment, the birds in the pens without supplement and those on dry alfalfa showed the first symptoms of distress. There was a dry condition and loss of luster in the feathers. A week later the pullets were eating small feathers that had been shed in the litter, and one bird died in Pen A from crop impaction. An examination of the crop disclosed an accumulation of shavings that had been eaten from the litter.

By December fifth there was definite evidence of feather picking in Pen B. One bird had most of the feathers picked from the neck. This condition was accompanied by a highly nervous and irritable attitude in both pens A and B, the "no supplement" pens. Later, these birds developed a craving for the fresh wood shavings and constantly scratched over and ate parts of the excrement on the dropping boards. There were no small feathers or down left in the litter in these pens, while it was plentiful in the "supplement" pens.

## Coarse Mash Helps

Feather picking was rampant in both A and B, but there appeared to be some virtue in the coarse mash fed in Pen B, as the loss in body weight was far greater in Pen A fed the fine mash. The loss in body weight was not evident in Pens C, D, and E fed fine mash with supplements, suggesting that the "roughage" factor might be of considerable importance. The abnormal craving for shavings and an increased appetite for coarse charcoal in the "no supplement" pens seemed to add weight to this suggestion.

**TABLE 2—Feather condition, egg production, body weight, and feed consumption, second test. All mash.**

| Pen | A<br>5% Alfalfa meal | B<br>Liquor (alfalfa) | C<br>Steeped alfalfa | D<br>No supplement | E<br>Dry alfalfa |
|---|---|---|---|---|---|
| Total birds at start | 40 | 40 | 40 | 40 | 40 |
| *Mortality (per cent) | 17.5 | 32.5 | 20.0 | 32.5 | 30.0 |
| Total bird days | 13,636 | 12,344 | 13,102 | 12,622 | 12,411 |
| Total weight of eggs per bird (grams) | 11,602 | 9,936 | 12,975 | 10,828 | 12,027 |
| Total mash per bird (grams) | 44,374 | 43,144 | 44,703 | 43,252 | 44,716 |
| Grams of feed for gram of egg | 3.82 | 4.34 | 3.45 | 3.99 | 3.72 |
| Total grit per bird (ozs.) | 10.0 | 16.2 | 40.8 | 10.8 | 33.5 |
| Total shell per bird (ozs.) | 47.0 | 35.0 | 52.2 | 41.5 | 42.8 |
| Total charcoal per bird (grams) | 85.6 | 175.6 | 104.4 | 405.2 | 52.1 |
| Total greens per bird (lbs.)—dry weight | — | — | 16.7 | — | 6.4 |
| Body weight—gain or loss per bird | —0.04 | —0.12 | +0.21 | —0.31 | +0.16 |
| Feather condition—Good at close | 9.1 | 55.8 | 53.1 | 3.7 | 17.9 |
| Feather condition—Fair at close | 27.2 | 29.6 | 37.3 | 37.0 | 39.2 |
| Feather condition—Poor at close | 63.7 | 14.8 | 9.4 | 59.3 | 42.9 |

*Laryngotracheitis

**TABLE 3—Total feed and mortality costs and returns from first experiment.**

| Costs | | | |
|---|---|---|---|
| Mash, 8,642 lbs. | | $192.72 | |
| Grain, 8,673 lbs. | | 143.93 | |
| Grit, 250 lbs. | | 2.11 | |
| Shell, 571 lbs. | | 5.41 | |
| Alfalfa, 988 lbs. | | 4.93 | |
| Oats, 1,202 lbs. | | 11.65 | |
| Total Feed Cost | | | $360.75 |
| *200 Pullets Nov. 1 | 1,150 lbs. | | |
| 183 Pullets Oct. 30 | 1,124 lbs. | | |
| Loss | 26 lbs. @ 15¢ lb. | | 3.90 |
| Total Cost | | | $364.65 |
| **Returns** | | | |
| Eggs laid—42,848 (3570 ¾ doz.) 25 cents per dozen | | | $892.68 |

*The gain in body weight during the experiment has taken up all but 26 lbs. of the loss by deaths.

In April there was some loss in feather in Pen D fed the dry alfalfa supplement, and this condition followed during May in Pen E, fed sprouted oats, though it was not definitely decided as feather picking until July. However, many birds in both these pens were almost bare before the experiment closed.

The birds in Pen C, fed the steeped alfalfa supplement, laid an average of 233 eggs each, gained over half a pound each in weight during the year of the experiment, and finished in good feather with no sign of picking.

In the first experiment, the method of feeding a fixed quantity of scratch grain (2 ounces per bird) in the litter offered some opportunity for self selection by the more active and aggressive birds in the pens and it was suggested that a better control of the whole experiment would be obtained if the scratch grain was ground and mixed with the mash. This changed the method of feeding to a definite all-mash program, but with the undesirable features that usually prevail when this method is practised. The birds in all the pens showed the effects by their idle and apathetic attitude, their growth of beaks and toe nails and an unsatisfactory body weight.

The only pens that showed any gain in weight were those that were given green feed supplements, and here the gain was slight. However, all pens were now on an equal footing, with the sole exception of the supplements provided for each pen.

As in the previous experiment, 40

Barred Plymouth Rocks were used in each pen, the same cereal ration was fed, and the dry alfalfa and the steeped alfalfa supplements were prepared and fed as before.

Pen A had 5 per cent alfalfa leaf meal included in the mash. Pen B had the liquor drained from the alfalfa to drink in place of water and no other supplement. Pen C had an unlimited supply of steeped alfalfa, Pen D had no supplement and Pen E had an unlimited supply of dry alfalfa.

Considerable dry hay was dropped in the litter by the birds in Pen E, and this waste could not be weighed. Probably the amount of hay consumed by this pen was less than appears in the table.

### All Mash Feeding Inferior

So many factors may be involved in the results obtained that a fair comparison cannot be made one year with another, but judging the general conditions in all pens during the second year as compared with the first year's results, the all-mash system of feeding had little to recommend it.

An unfortunate outbreak of Laryngotracheitis that ran from May 13 to August 2 in the second experiment affected the all-round performance in all the pens. As this condition appeared to be equally distributed, and nearly all the birds were more or less affected, it is safe to assume that it did not influence the feather picking factor in one pen more than in another.

There appeared to be no virtue in the liquor drained from the alfalfa and given as drink in Pen B. Five weeks after the experiment started, some birds had lost feather and there were several with bare necks in Pen A, where the birds had 5 per cent alfalfa leaf meal but no supplementary green feed. A week later there was definite evidence of feather picking in Pen E, on dry alfalfa hay, and in Pen D, where no supplement was supplied. By April, the condition in A, B, and D had become worse, and the birds in E were still picking but not to the same extent. At this time, birds in Pen C were holding their original feather condition.

At the close of the experiment on November 27 the feather in pens A, D, and E was poor and there was considerable picking. In pen C there was some molt but there did not appear to be any feather picking. The total results in all pens were not as good as at the close of the first experiment, and to some extent the outbreak of bronchitis was responsible for these conditions.

### Color of Yolks

Four hundred eggs were broken into saucers and examined for yolk color. Only two had yolks of objectionable shade, and these were laid by persistent offenders in this respect. Where alfalfa had been fed as a supplement, there was a high proportion of rich golden yolks. Where no supplement was supplied, or only sprouted oats, the yolks of almost all the eggs were pale.

Several dozen eggs from these pens were distributed with a questionnaire and the general consensus was that the rich colored yolks were preferred.

In a current project, the birds from this experiment have been mated and the progeny will be reared in total confinement on the same "deficiency" or "complete" ration as the parent stock received.

From time to time we have suggested the steeped alfalfa diet to many poultrymen who have experienced the feather picking trouble in their flocks. When the feeding program has been carried out closely, the response has been encouraging.

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## Keep Early-Pullets on Range

The housing and confinement of ready-to-lay pullets during the summer are attended with well-recognized liabilities which may lead to serious losses from cannibalism and those setbacks too often experienced when ready-to-lay pullets are transferred from a good range to confinement in the laying house during July and August. Obviously, the simplest solution to this problem is to continue the pullets on range as long as weather and pasturage conditions will permit.

When early hatched pullets are continued as layers in colony houses and shelters on range, it is important to make sure that the birds are not overcrowded. A 10 by 12-foot colony house or shelter will properly accommodate only 30 to 35 pullet layers. Moreover, it will be necessary to provide suitable nesting equipment—8 to 10 attractive nests for each 10 by 12-foot colony house or range shelter.

When possible, the range for use of early-hatched pullets after the first of October should have wind protection on the west and north from a hedge, trees, or ground elevations. Range shelters will need to be enclosed on three sides after the first of October by feed bags, tar paper, paper roofing, or a similar material. Only one end, to the east or south, should be open.

—D. C. Kennard and V. D. Chamberlin in Ohio Bimonthly Bulletin No. 215.

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❡ ROBERT HUDSON of Bennington, Vermont, went to his hen house one morning, selected an egg, took it into the house, and cooked it. When he went to crack his three-minute egg it exploded, leaving his hand bleeding. It was the china decoy egg, says the New York Times.

# WAR AND THE POULTRY RAISER

### Contingent Sales of Cases Termed Illegal by OPA

Used egg case dealers who refuse to sell used egg cases to purchasers who won't buy new cases are violating Maximum Price Regulation No. 117, the measure which governs sales of used egg cases, says the OPA.

### Poultry Feeds for Lend-Lease

Purchases by the government, for lend-lease purposes, of poultry feed were announced on July 21. Initial purchases were of 500,000 pounds of laying mash, 500 pounds of scratch feed, 13,200 100-pound bags of No. 2 yellow corn and 8,280 100-pound bags of No. 2 white oats.

### Dried Food Equipment Gets High Priority Rating

To increase production of dried foods for armed services and lend-lease use, the WPB requirements committee has assigned a priority rating of AA-3 to the delivery of equipment to be used in expanding the production of dried eggs, milk, meat, and vegetables.

The additional equipment will result in the production of 84,293,000 pounds of spray process milk, 110,242,000 pounds of eggs, 66,189,000 pounds of vegetables, and 60,000,000 pounds of meat during the year beginning July 1, 1942.

### Buy Poultry for Protein Advises OPA

During the temporary shortage of beef, veal, and pork, consumers should buy more poultry and fish, says the Consumer Division of the OPA.

### New Truck Order Issued

ODT truck regulations No. 4 and 5 have been cancelled, with a new order, No. 17, substituted, effective August 1. Under the new regulation, trucks operated by contract and private carriers in over-the-road service must be loaded to capacity on "a considerable portion" of the trip out or back, and the operator must use "due diligence" in attempting to obtain a full load.

Other provisions are that private and contract haulers must (1) eliminate wasteful operations and duplication of parallel services and curtail schedules and services to the extent necessary to comply with the order (25 per cent reduction in mileage under the same month last year, (2) limit speed to 40 miles per hour, (3) conserve and properly maintain tires and equipment.

## *Occurrence Frequency of Poultry Diseases*

An analysis of more than 30,000 autopsies, resulting in more than 17,071 diagnoses, made on chickens from northern California submitted to the state laboratory throughout a 9-year period, contains material of general interest to those who work with poultry, says an article by H. A. Hofmann and D. E. Stover in the North American Veterinarian for May, 1942.

Coccidiosis was found in 23.3 per cent of birds of all ages that were examined. Colds and coryza ranked second, infecting 7.7 per cent. The ten next ranking diseases, in order of occurrence, were intestinal roundworms, paralysis, enteritis, pullorum disease, tumors, gizzard ulceration, fowl cholera, and leukosis. Infectious laryngotracheitis and ruptured yolk were found in 2.6 and 2.4 per cent, respectively, of all birds examined.

Of the total number of chickens examined, 64 per cent were less than seven months old. In birds four weeks old and less, pullorum disease was present in 27.9 per cent of those examined and coccidiosis in 20.5 per cent. Gizzard erosion was third in order of occurrence. Coccidiosis was found in 49.7 per cent of the birds from 5 to 12 weeks of age. Colds and coryza and enteritis held second and third places, respectively; gizzard ulceration dropped to fourth place.

Coccidiosis was the most frequently occurring disease in chickens three to six months of age, infecting 24.5 per cent. Paralysis, colds and coryza, and intestinal roundworms followed in importance. Vitamin A deficiency ranked eleventh.

Birds from seven to twelve months most frequently showed colds and coryza (11.5 per cent), intestinal roundworms (11.3 per cent) and coccidiosis (8.6 per cent). Leucosis rose to fourth place. Intestinal roundworms, fowl cholera, colds and coryza, and tumors were the four most frequently occurring diseases in the one to two-year-old group. Coccidiosis was in seventh place. In birds over two years of age, tumors, fowl cholera, colds and coryza, ruptured yolk and intestinal roundworms occurred most frequently. Coccidiosis was in nineteenth place.

The tabulations showed that there was a close correlation between cases of fowl cholera and rainfall.

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BRITISH soldiers, members of a South African medical dressing station in Egypt, found a rooster lying amid wreckage of a British supply dump and took it to a kitchen with thoughts of a stew. When the rooster was given food and water he revived and began crowing. Now he's a mascot and the men have sent to Cairo for a hen to be his mate, say newspaper reports.

# Shock Cooling of Dressed Poultry

By M. H. SWEET and G. F. STEWART
Iowa State College

*Condensed from U. S. Egg and Poultry Magazine*

THERE has been little change in conventional cooler room design since the inception of artificial refrigeration. In 1911 Pennington stated that poultry was cooled in refrigerated rooms which varied from 27° to 41° F. and averaged 34° F. during a normal operating day. Poultry required 24 to 48 hours to cool when hung on standard racks holding about 150 birds. A survey of present plant practice indicated that similar temperatures and cooling times exist today.

## Government Clamps Down

Recent work on changes occurring in undrawn poultry indicates that prompt cooling is a primary essential in quality preservation. The recent activity of the Federal Food and Drug Administration in seizing "green struck" poultry provides ample evidence that some poultry is far from being properly cooled and held at proper temperatures after being chilled.

The tremendous growth of commercial turkey production, because of the size of the bird and the tremendous tonnage handled in small packing plants, has made rapid cooling for this bird even more important than for the chicken.

Rapid cooling methods, once perfected and developed, should secure a ready acceptance by those progressive packers interested in securing finer quality for their eviscerating operations, helping to eliminate certain quality defects in undrawn poultry, and relieving the refrigeration overloads on cooling rooms.

## Factors Affecting Cooling

The variable qualities of the poultry carcass which affect its cooling rate are amount and distribution of fat, weight, and surface area per unit volume. Since the thermal conductivity of fat is only about 30 per cent that of water, a layer of subcutaneous fat acts as an insulator and thus decreases the conduction of heat to the surface, thereby retarding the cooling process.

Cook developed equations relating the cooling time of poultry to its initial temperature and weight. Other factors remaining constant, the cooling time was proportional to the weight of the bird.

Since heat is removed from the bird through the surface, the greater the ratio of surface area to volume, the more rapid the cooling. The distance from the center of the bird to the surface, and thus the distance heat is forced to travel before being absorbed by the cooling medium, varies inversely with the surface area per unit volume. This gives an advantage in cooling time to the birds with the greater surface area per unit volume.

## Choosing a Cooling Medium

Since poultry must be precooled regardless of the finish, weight, and compactness, it is necessary that most adjustments which will speed up the cooling process must be made in the cooling medium.

For cooling, air is greatly limited by its conductivity, specific heat, and density. Therefore, it seemed logical to resort to water and water solutions in these studies.

The rate of cooling is proportional to the circulation of the cooling medium. Two methods of circulating the liquid cooling medium over the surface of the poultry are to submerge the poultry and agitate the liquid or to suspend the poultry in air and spray the cooling liquid over the birds. Since it seemed probable that the latter would be more practical under commercial conditions most of the experiments were carried out using a liquid spray.

Water is limited as a liquid cooling medium because it cannot be used at temperatures below 32° F. Since the rate of cooling is more rapid when the cooling medium is colder, it seemed advisable to use salt brine in order to study a wider range temperature.

Rate of cooling can be made even more rapid if the ability of the dressed bird to conduct heat can be increased. By freezing the surface of the bird which is in contact with the cooling medium, the rate of heat transfer from the interior to the surface is greatly increased, because the conductivity of ice is much greater than that of water. As the surface of the bird is frozen, without temperature change, the amount of refrigeration stored in the frozen part of the carcass is increased 80 times above that of merely lowering the temperature one degree without freezing.

This stored refrigeration in the form of ice also has the advantage of keeping a greater difference in temperature between the surface and center of the bird, for the surface temperature will remain at about 30° F. until the ice is melted, whereas if there were no ice present there would not be nearly as much difference in temperature. The ice in the surface layers of the bird is melted mostly from the heat given off by the warmer interior, thereby lowering the internal temperature.

## Cooling in Air at 35° F.

New York dressed undrawn poultry was hung in air at about 35° F. within 15 to 40 minutes after slaughter until the internal temperature reached 36° to 38° F. A mercury thermometer was inserted through

From, "Refrigerated Brine Sprays for Cooling Dressed Poultry"
(U. S. Egg and Poultry Magazine, May, 1942)

**TABLE 1—Time to Cool Poultry in Air at 35° F.**

| No. Birds Each Trial | Market Class of Poultry | Avg. Wt. (Pounds) | Temp. of Air (°F.) | Cooling Time to 38° Range (Min.) | Avg. (Min.) |
|---|---|---|---|---|---|
| 6 | Leghorn cockerels | 2.51 | 34-36 | 455-515 | 480 |
| 6 | Roasters | 5.73 | 34-36 | 570-690 | 640 |
| 2 | Fat pullets | 5.28 | 34-36 | 570-570 | 570 |
| 3 | Heavy fowl | 6.77 | 34-36 | 960-960 | 960* |

*The temperature of these birds was 38° F. at the end of 16 hours.

the vent of the bird in such a manner that the bulb of the thermometer was near the center of the bird. The temperature was read and recorded after regular intervals until the desired temperatures were reached.

### Continuous Water-Spray Cooling

New York dressed poultry was hung on shackles by the feet in the spray cooling cabinet within 15 to 40 minutes after slaughter. It was sprayed with water at 33° to 35° F. until the internal temperature reached 35° to 38° F. The poultry was hung in such a manner that the spray struck the thigh region of the bird and flowed down over the body and off the wings and head. The internal temperature of the bird was determined by inserting a recording device through an incision on the back of the neck to a point near the center of the bird. The temperature was read and recorded at regular intervals during the cooling process.

### "Cold-Shock" Cooling

New York dressed poultry was hung by the feet on shackles in the cooling cabinet within 15 to 40 minutes after slaughter in the same manner as for the continuous water-spray cooling. Brine sprays (20 per cent salt), varying in temperature from 15° to 32° F., were used for the various trials.

The period of time the birds were in the brine spray varied from 10 to 60 minutes. The internal temperature was taken in the same manner as with the continuous water-spray cooling. The birds were then removed to an air cooler (30° to 38° F.). When the birds were taken from the brine spray, the temperature-recording devices were removed and thermometers inserted in the bird as in air cooling. The temperature was recorded at regular intervals until the internal temperature was at 34° to 38° F.

### Spray Cooling Equipment

In these experiments, the 20 per cent brine was cooled in a commercial water cooler and pumped to the spray nozzles. From these nozzles it sprayed onto poultry hung by the feet from poultry shackles. The brine collected in the bottom of the cooling cabinet, ran out the drain, and was then pumped back to the water cooler.

### Experimental Results

**Cooling in air at 35° F.**—A few trials were made in which the birds were cooled in air at 35° F., which is near the average poultry cooler room temperature in the United States. This was done in order to have a basis on which to compare the spray cooling methods used in this study. It was also desired to have some results to supplement the work done by Cook, who used air at 32° F.

In our work we noted that while eight hours were required to cool Leghorn cockerels averaging 2.51

an effort to establish a more rapid method of cooling. We found that cooling time with the water-spray method was reduced to about 20 to 27 per cent of that in air at 35° F.

While pullets required practically the same cooling time as roasters, it should be noted that they averaged almost a pound lighter. Thus the effect of fat on cooling rate is again evident.

**"Cold-shock" method**—When it was found that from 2 to 6 hours would be required to cool poultry by the continuous water-spray method, it was apparent that the equip-

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| No. Birds Each Trial | Market Class of Poultry | Avg. Wt. (Pounds) | Temp. of Water (°F.) | Cooling Time to 38° Range (Min.) | Avg. (Min.) |
|---|---|---|---|---|---|
| 5 | Leghorn cockerels | 3.18 | 33-35 | 100-135 | 120 |
| 15 | Roasters | 5.68 | 33-35 | 135-240 | 180 |
| 12 | Fat pullets | 4.78 | 33-35 | 130-230 | 192 |
| 4 | Capons | 7.68 | 33-35 | 220-340 | 266 |

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The period of time the birds were in the brine spray varied from 10 to 60 minutes. The internal tempera-

brine collected in the bottom of the cooling cabinet, ran out the drain, and was then pumped back to the water cooler.

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### Experimental Results

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In our work we noted that while eight hours were required to cool Leghorn cockerels averaging 2.51 pounds, 11 hours (43 per cent increase in time) were required to cool roasters averaging 5.73 pounds (approximately 145 per cent increase in weight). In other words, large increases in weight required but moderate increases in cooling time. The effect of fat is clearly shown by comparing the cooling time required for roasters with that for fowl. Even though the fowl averaged but 25 per cent heavier than the roasters, they required approximately 50 per cent greater time to cool.

**Continuous water-spray cooling**—Water at 33° to 35° F. was sprayed on the birds until they were cool, in an effort to establish a more rapid method of cooling. We found that cooling time with the water-spray method was reduced to about 20 to 27 per cent of that in air at 35° F.

While pullets required practically the same cooling time as roasters, it should be noted that they averaged almost a pound lighter. Thus the effect of fat on cooling rate is again evident.

**"Cold-shock" method**—When it was found that from 2 to 6 hours would be required to cool poultry by the continuous water-spray method, it was apparent that the equipment requirements would make cooling by this method too costly an operation to be used in the average produce plant.

Cook showed, by comparing the surface and internal bird temperatures, that after a bird was half cooled the limiting factor became the conduction of the heat through the bird itself. During the first half of cooling, the transfer of heat from the surface was the limiting factor.

These facts led to a study of the "cold-shock" method of cooling. By this method, a maximum rate of heat transfer was effected during the initial stages of cooling. In the final

**TABLE 2—Time to Cool Poultry in a Continuous Water-Spray at 33-35° F.**

| No. Birds Each Trial | Market Class of Poultry | Avg. Wt. (Pounds) | Temp. of Water (°F.) | Cooling Time to 38° Range (Min.) | Avg. (Min.) |
|---|---|---|---|---|---|
| 5 | Leghorn cockerels | 3.18 | 33-35 | 100-135 | 120 |
| 15 | Roasters | 5.68 | 33-35 | 135-240 | 180 |
| 12 | Fat pullets | 4.78 | 33-35 | 130-230 | 192 |
| 4 | Capons | 7.68 | 33-35 | 220-340 | 266 |

**TABLE 3—Optimum Time in Spray for Efficient "Cold-Shock" Cooling**

| Market Class | Avg. Wt. (lbs.) | Time in Spray (Non-Freezing) 23-24° F. (Min.) | Time to Cool (Hrs.) | Time in Spray (Freezing) 20-21° F. (Min.) | Time to Cool (Hrs.) |
|---|---|---|---|---|---|
| Fryers | 3.0 | 15 | 4 | 10 | 3½ |
| Roasters | 4.5 | 40 | 4½ | 20 | 3½ |
| Light fowl | 3.6 | 40 | 4½ | 20 | 4 |
| Heavy fowl | 5.0 | 60 | 4½ | 25 | 5 |
| Light turkeys | 12.0 | 45 | 8 | 20 | 7½ |
| Heavy turkeys | 20.0 | 60 | 9 | 30 | 9 |

stages, air was nearly as efficient as the spray, since heat transfer through the bird was then the controlling factor. Also, when the temperature of the spray is below that of the air in the subsequent cooling, refrigeration is stored in the outer portion of the bird. This stored refrigeration aids in reducing the total cooling time. The only point that remained to be determined was the length of time the birds should remain in the spray to effect the maximum cooling rate at the various brine temperatures.

The results of these trials show that, for the times we used, there is some decrease in the cooling time over that in air at 35° F. The decrease was not as large as that made possible by using a continuous water-spray at 33° to 35° F. Increased lengths of time in the spray would have given better results but, again, equipment requirements would prevent their use by industry.

### Freezing Sprays

It was suggested that poultry could be sprayed with brine below its freezing point (about 30° F.) for a time and yet not freeze the birds. A number of trials were made to determine the lowest brine temperature that could be used in the "cold-shock" method of cooling without freezing the surface of the bird.

When the bird begins to freeze, the skin takes on a characteristic white appearance. This is first noticeable in the hip region, which receives the greatest amount of brine spray. The freezing then spreads over the entire surface of the bird. The exact time required depends on the temperature of brine and the "finish" of the bird.

It became apparent that temperatures below 28° F. could be used for short periods of time without freezing, and so trials were made using brine spray at 28° and 24° F.

Since the air temperature could not be controlled closely (30° to 38° F.) there was considerable variation in the rate of cooling after the stored refrigeration was exhausted. The 35° F. air cooler available was at some distance from the spray cooler and could not be used in the "cold shock" experiments.

The cooling time in air is much longer than for any of the other methods. As the temperature of the spray is lowered, the cooling time was much less especially for the 20° F. brine spray and with continuous water-spray. There is very little difference in the rate of cooling for the first hour, or until the internal temperature of the bird is between 60° and 70° F. After the birds have cooled to about 60° F., (approximately half cooled) there is a marked change in the cooling rates, the continuous water-spray and the lower temperature "cold-shock" sprays cooling the poultry most rapidly.

### Observations

There was an opportunity to observe a large number of birds both before and after cooling by the various methods employed. There was no significant difference in internal or external appearance of any of the birds when examined within one to three days after cooling.

Twelve birds, six cooled by the "cold-shock" (20° F.) method and six cooled in air at 35° F., were cooked and scored for palatability. No differences were noted between the birds of these two treatments.

Shrinkage in weight during spray cooling was insignificant.

The 20 per cent salt brine was used for seven months without renewal (temperature varying from 10° to 80° F.). Several bacteriological tests were made at the end of the experiments to see whether or not any gross contamination of the brine had occurred. Our results indicate that 20 per cent brine is not a favorable medium for the multiplication of the bacteria (under the condition encountered) which contaminated it. There was ample opportunity for contamination to occur during the cooling operation as no special precautions were made to keep it down. A test for the colon group of bacteria indicates that they do not survive in a 20 per cent brine under the conditions encountered in these experiments.

### Precooling Turkeys

As pointed out previously, precooling turkeys is even more difficult than precooling chickens. The main reason is their much larger size—average 16 pounds, compared to 4.5 pounds for chickens. Another factor making it a serious problem is that the turkey season is very short and intense. Furthermore, turkeys are usually slaughtered in plants which have been equipped with refrigeration facilities to handle chickens. Such plants must be run much above their refrigeration capacity to handle turkeys in addition. It is common, therefore, for coolers to be heavily overloaded. Under such conditions, the possibility of the turkeys being cooled to 36° F. even within a reasonable time (12 to 24 hours) before packing is not good.

There were only a limited number of turkeys available during the time

**TABLE 4—Time to Cool Turkeys by Air, Continuous Water-Spray and "Cold-Shock" Methods**

| Birds per trial | Type of cooling | Avg. Wt. (Pounds) | Sex | Temp. of cooling medium (Deg. F.) | Time in cooling medium (Min.) | Total cooling time Range (Hrs.) | Avg.* (Hrs.) |
|---|---|---|---|---|---|---|---|
| 3 | Air | 18.1 | Hen | 35 | | 18.00-19.26 | 18.60** |
| 7 | Continuous water spray | 23.1 | Tom | 33-34 | | 7.25- 9.67 | 8.38** |
| 2 | "Cold-shock" | 15.8 | Hen | 24 | 30 | 11.17-11.17 | 11.17 |
| 3 | "Cold-shock" | 12.6 | Hen | 24 | 45 | 7.00- 8.50 | 7.50 |
| 3 | "Cold-shock" | 12.3 | Hen | 24 | 90 | 5.17- 5.17 | 5.17 |
| 2 | "Cold-shock" | 17.5 | Tom | 24 | 30 | 10.50-11.50 | 10.75 |
| 2 | "Cold-shock" | 18.7 | Tom | 24 | 45 | 9.50-10.00 | 9.75 |
| 2 | "Cold-shock" | 18.8 | Tom | 24 | 90 | 7.28- 7.76 | 7.50 |
| 2 | "Cold-shock | 15.2 | Tom | 20 | 20 | 7.00- 8.00 | 7.50 |
| 3 | "Cold-shock" | 14.2 | Hen | 20 | 30 | 6.25- 7.00 | 6.50 |
| 3 | "Cold-shock" | 15.1 | Hen | 20 | 45 | 5.00- 5.50 | 5.25*** |

*Cooled to 36° F. unless otherwise stated.
**Cooled to 38° F.
***Frozen too stiff to be packed when cooled.

this study was being made. Therefore, the data are not as complete as desired. However, enough work was done to show that the "cold-shock" method is applicable to turkeys.

A preliminary study was made to determine the brine temperature which would freeze turkeys when held in the brine spray during the "cold-shock" treatment. It was found, as with chickens, that there is a considerable individual variation between birds, but in general turkeys began to freeze at 22° F. This is about one degree higher than that for chickens.

If air at 35° F. were used for cooling turkeys it would be impossbile to pack any one day's kill early the following day, for they would not have cooled to 36° F. (temperature required before federal inspection) in less than 25 to 35 hours.

By using a continuous water-spray (33° to 35° F.) turkeys were cooled in 7 to 10 hours. Continuous spraying for such periods in the produce plant is probably impractical because of excessive equipment costs. By using a brine spray at 24° F. they cooled somewhat slower (depending on the length of the "cold-shock") than by the continuous water-spray method. However, when a 20° F. brine spray was used for 20 to 30 minutes it was possible to cool them in a time comparable to that of the continuous water-spray method.

From the results of this study it would seem that the most rapid and practical method for cooling turkeys would be to use a 20° to 21° F. brine spray for 20 to 30 minutes, rinse with cold water, and remove to a room at 35° F. to dry off and finish cooling to 34° to 36° F.

The recommended conditions for cooling the various market classes of

poultry and turkeys are given in Table X. For those who prefer a non-freezing method, brine temperatures of 23° to 24° F. are recommended. Otherwise, a 20° to 21° F. brine should be used for best results.

By following these recommendations, chickens and turkeys may be cooled in a fraction of the time now required with air cooling. Chilled birds may be eviscerated, frozen, or on the market many hours sooner, with the consequent saving in quality if such rapid chilling methods are employed.

From the results obtained the following conclusions may be drawn:

1. Liquid (water or brine) sprays (28° to 34° F.) cool chickens and turkeys in 30 to 40 per cent of the time required by air at 35° F.

2. By spraying the dressed carcass with refrigerated brine (22° to 28° F.) for short periods of time (10 to 60 minutes) and then hanging in air at 35° F. ("cold-shock" method), the total cooling time is less than when continually in air at 35° F. but longer than when continually in sprays at 34° to 36° F.

3. The amount of refrigeration stored and, consequently, the cooling rate, can be greatly increased by partially freezing the bird before hanging in air at 35° F.

4. It is possible to precool chickens and turkeys by the 20° F. "cold-shock" method in 25 to 35 per cent of the time required in air at 35° F.

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## Good Water Systems

A turkey can go without feed for quite some time with no ill effects, but keep him from water very long and he never recovers. Particularly during the hot days, the water system is all-important to a flock of turkeys. Here are a few points about good water systems.

1. Water should be clean. Not only should the tank or pipe line from which the water comes be clean and sweet, but the troughs should be protected from the birds so there is no chance of any droppings getting in the water.

2. Water should be cool. Where tanks are used, some provision should be made that the tank or container be set in the shade.

3. Troughs should be set on screens. Turkeys always dribble some water, so unless the troughs are on screens there is always a damp place around them; a wonderful breeding ground for germs of all kinds.

4. Troughs should be either large or numerous. A turkey should never have to crowd through the flock to get a drink.

—Norbest Turkey News, June, 1942.

# Wet vs. Dry Cooling of Dressed Poultry

By J. ROBERTS and E. I. ROBERTSON
Washington State College

*Condensed from the American Egg and Poultry Review*

POULTRYMEN with a small volume of market birds as a rule do not employ the methods of removing feathers that retain the natural colors of the skin. Particularly is this true with young birds with varying amounts of pin feathers. In produce markets or in commercial broiler plants, facilities may be available for "slack scalding" at a temperature of 124° to 130° F. and finished with or without the use of wax, which aids materially in securing a cleaner, better-picked bird.

## Scalding Causes Discoloration

It is common practice to scald broilers or fowl at a temperature of from 138° to 150° F., which removes the epidermis. When the carcasses are exposed to the air, discoloration occurs, due to unevenness in the evaporation of moisture from the bird. Dry picking of adult chickens or turkeys prevents this discoloration, but is not practical for young chickens.

In addition to the methods of dry cooling poultry under refrigeration, a water method of cooling has been introduced within the past year. This method consists essentially of an insulated box or room filled with water which has been refrigerated to the point that the temperature of the water is about 33° F. After plucking, poultry can be immersed in the water until it is cooled to within a few degrees of the water temperature. After cooling, the carcasses can be stored in wire baskets above the water until marketed.

## Advantages of Wet Cooling

The advantages claimed for this method are, first, that the poultry actually gains weight instead of losing weight during the cooling and storage period; second, the birds that are cooled by the wet method have a better market appearance and less discoloration due to scald than the dry-cooled birds; third, that the wet-cooled birds are easier to draw; and fourth, the rate of cooling is much more rapid.

The usual wet storage cooler as used by the small producer is essentially a wet-type milk cooler. The refrigerating coils are located around the edge of the cooling box, which is filled with water, and an ice bank is built up around the cooling coils. The ice bank provides a reserve of refrigeration during the cooling period and maintains the water at a constant temperature. As soon as the birds are placed in the cooler, the compressor starts. The water is agitated to facilitate rapid cooling.

The Urner-Barry Co., 173-175 Chambers St., New York, N. Y.
(Amerian Egg and Poultry Review, July, 1942)

Birds used in our investigation were distributed as equally as possible into groups. Birds placed in the wet cooler were removed at definite intervals, dried, and temperatures and weights recorded. The birds to be dry-cooled were divided into three groups, the first being placed directly in the dry cooler, the second plumped in 50-degree water for 2 minutes, then stored in the dry box, and the third group plumped in 50-degree water for 10 minutes, after which they were placed in the dry box. Birds used for flavor tests were stored three, seven, and twelve days by the wet and dry methods, after which they were cooked and flavor tests made.

## Wet Cooled Appearance Superior

Preliminary tests of hens and broilers showed that birds were cooled more rapidly by the wet method than by the dry method and that wet-cooled birds gained weight during the cooling period, while the dry-cooled birds lost weight.

Higher scalding temperatures resulted in higher gains in weight when birds were cooled by the wet method, and greater losses in weight when cooled by the dry method. Plumping reduced weight losses and discoloration. Appearance of the birds after storage was related to weight loss, the best appearing birds being those with smallest weight losses. The appearance of the dry picked birds was not affected by the method of cooling, although slight weight changes occurred.

Weight changes were found to be greater with broilers than with adult birds. Greater discoloration occurred at higher scalding temperatures. It was interesting to note that the market preference was unanimously given to the wet-cooled birds.

## Plumping Improves Appearance

The scalding of poultry caused discoloration of the skin, the amount being dependent upon the scalding temperatures, methods of cooling, length of storage, and relative humidity of the storage room. Discoloration was decreased by plumping. There was considerable difference in the market appearance in favor of the wet-cooled birds at the scalding temperature of 145° F. There was less difference in the market appearance of the birds cooled by the various methods when scalded at 127° F. than of those scalded at 145° F. The dry-picked birds cooled by the various methods presented little or no difference in market appearance.

## Flavor Study

Birds used for the flavor tests were taken from storage and prepared for cooking. Quarters of the broilers were dipped in batter and then into deep fat at 350° F. and allowed to cool to about 310° F., where the temperature was maintained for 15 minutes for light and 20 minutes for dark meat. The skin and bones were removed before tasting. Each taster was served duplicate samples of light and dark meat from the same portion of each broiler. Samples were scored on flavor, tenderness, and quality of juice by four judges.

### Dry-Cooled Birds Inferior

It was unanimously agreed that a bird dry-cooled and stored 12 days was inferior and placed last because of objectionable odors and flavor. A bird wet-cooled and stored 6 days was placed third. There was little difference in rating of the wet-cooled birds stored 6 and 12 days, when sampling the dark meat.

Samples of the dark meat showed a slight favor for the wet-cooled birds, while samples of the light meat gave a slight superiority to the three-day storage of both wet and dry-cooled birds over the seven-day storage of both the wet and the dry-cooled birds.

### Bacteria Counts

There has been considerable discussion by the various producers using the wet and dry methods of refrigeration as to the bacteria content of the water. To determine the number of bacteria, tests were made of the cooling water by Professor C. C. Prouty. Water was placed in the water cooler on December 9, and bacterial tests were made on January 14 and January 21. These tests showed that the bacteria growth was extremely slow in water held at this temperature, 33° F. Tests on January 14 showed that the bacteria count was 2,400 per cubic centimeter, while tests on January 21 showed that the bacteria count was 30,000 per cubic centimeter and the coliform count was 25 per cubic centimeter.

### Wet-Cooling Proved Best

The wet method of cooling and temporary storage of poultry had many advantages over the dry method. The wet cooled birds gained weight, while the dry cooled birds lost weight. When the wet method was used, the poultry cooled more rapidly, presented a better market appearance, and was equal or superior in flavor to the dry-cooled birds. The discoloration and the weight loss were dependent upon the scalding temperatures, the higher scalding temperatures resulting in the greater weight change and more discoloration. Discoloration was retarded by plumping, while wet cooling prevented discoloration. The appearance of dry-picked poultry was not affected by the method of cooling, and its weight change was less than that of the scalded birds.

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# Feathers . . . An Important By-Product

*Reprinted from U. S. Egg and Poultry Magazine*

FEATHERS, too, have been called to the colors. Recently, the navy ordered 650,000 chicken feather pillows and the army 1,000,000 duck feather pillows. On the average, it takes 3 pounds of feathers to fill one pillow, so these two orders alone call for feathers from some 5,000,000 chickens and 8,000,000 ducks.

Since ancient times, feathers have been used for ornamental purposes. The ancient Egyptian priests wore feathers in their hair to signify their ranks, and it was the sacred feather that denoted sovereignty. Upon the walls of the tomb of Seti I, the Libyans are pictured wearing one or two upstanding feathers in their hair.

The first use of feathers in military costume appeared about 1400. And from the paintings of the old masters, we know that feathers were used extensively in men's as well as women's dress. It was during the reign of Henry VIII that women are said to have first worn feathers in their hair.

### Commercial Uses

Nowadays feathers are used in pillows, quilts, mattresses, and upholstery. Quantities of feathers are used in the millinery trade. Feather dusters, fishing tackle, shuttlecocks, artificial flowers, pipe cleaners, artists' brushes, writing quills, etc., absorb some of the feather supply. Several years ago, the French mixed hair and feathers with wool, and now, due to a shortage of furs, this particular use of feathers is being revived, according to recent reports.

The toy making industry also uses quantities of feathers. The heavy wing quills of turkeys become feather boning for whips and riding crops. Downy feathers from the abdomen of the turkey are stripped from the quills and become imitation marabou (used for dress trimming).

### How Feathers are Handled

When poultry dressers first started saving feathers, picking was dry, so it was an easy matter to merely spread the feathers on the floor and see that they were stirred from time to time. Later it was found that artificial drying would produce a superior product, since it was in better condition, more uniform, and there was less loss from molding or damage in handling.

In artificial drying as practiced today, the feathers are placed in a large revolving drum, heated by steam pipes, with suction to carry away the natural moisture. After steaming, the feathers may be

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(U. S. Egg and Poultry Magazine, June, 1942)

sacked by suction or receive a short period of drying in large, well-ventilated rooms, to allow for dissipation of odors.

### Extractor Removes Water

With the advent of the scalding method, plants had to use an extractor to remove the loose water, and a drier for drying. Keeping the wet feathers off the floor proved a problem, but it was solved by using inexpensive wire frame sack holders from which cotton feed sacks were hung and into which the tippers threw the body feathers (tail and wing feathers having been pulled previously), separating white from colored.

In some instances, feathers are transferred from killing room to drying room by means of suction pipes which connect with the boxes or troughs into which the feathers are thrown by the pickers. If the feathers are on the floor, they are cleaned up at intervals by suction pipes suspended from the ceiling or connected with a trap-door in the floor.

In the use of the wax method of dressing poultry, about 80 per cent of the feathers are removed by the roughers. It is not possible to salvage the remaining 20 per cent removed by the wax.

Feathers must be handled promptly, for the ammonia content will cause rapid deterioration. When extracting feathers, they should be sprayed with water for about 30 seconds. Extracted feathers should not be carried over from day to day. Care must be taken not to dry the feathers too much, as this will very likely create broken feathers, due to agitation of brittle quills, and there will also be excessive shrinkage in weight.

If feathers are allowed to lie around for even 24 hours, one operator reported, the bone of the feather becomes very soft and the feather will come out in a "fibry" and broken condition.

### Grading and Sterilizing Feathers

Feathers can be separated into different grades by gravity. They are fed in at a feed box at one end of the machine and any sand, stones, and other heavy material is dropped through the screen to the compartment below, where it can be removed through a door in the side. On the opposite end is a suction fan to draw the feathers through the machine, the heaviest feathers falling into the first compartment and so on, until only down collects in the last compartment.

Compartments are connected with air spouts at the bottom so that the stock can be removed by a fan and deposited in storage bins. In order to overcome static electricity caused by the dryness of the feathers, a small amount of steam is introduced, and this helps keep the grades more uniform and increases the proportion of down.

Feathers are sterilized by turning live steam, at 100 pounds pressure, into the sterilizing machine for a period of 3 to 7 minutes. The blast fan is then started and cold air blown into the machine to cool the feathers.

### Commercial Cleaning of Feathers

Cleansing or scouring of feathers is generally done in a lukewarm (100-120°F.) weak solution of soap, to which alkalies, such as ammonia, ammonium carbonate, sodium carbonate, or borax, have been added. Sometimes cleaning is done in cold water containing a little soda ash and some powdered starch. The solution should not be too hot or too strongly alkaline, as these conditions tend to impair the quality of the feathers.

Soap and pearl-ash for cleaning are not often used for white feathers as this combination tends to induce yellowing of the flues (soft feathery portion). If the feathers are somewhat bloodstained, they can be soaked in a warm bath containing sufficient ammonia to soften the blood clots.

An ammonium carbonate solution is probably the most effective method. A weak olive oil soap solution containing a little ammonia has proved to be excellent from the standpoint of scouring out dirt and natural greases. If a small amount of solvent detergent is used in conjunction with the last-named method, distinctly superior results are obtained.

The feathers used for stuffing cushions, upholstery, etc., are best scoured in coarse hessian bags for the sake of easy handling during processing. About 2 pounds of feathers should be filled into each bag; crowding of the contents should be avoided or the feathers will not be properly cleansed, since free circulation of the scouring liquor will be hindered. After immersion of the bags, they are well pounded in the warm scouring liquor, and the material is then left to steep for 15 minutes.

After scouring, the feathers should be well rinsed in warm water so that none of the cleansing agents are retained by the feathers. Any soap residue would cause trouble in subsequent dyeing operations.

### Bleaching Feathers

Methods employed for bleaching feathers are varied, but the more important processes employ oxidizing agents rather than reduction agents. Hydrogen peroxide solutions are used, either alone or in conjunction with metallic salt catalyzers which act as oxygen liberators.

Feathers to be bleached are placed in bags which are plunged into the bath of bleaching liquor and allowed to remain until the feathers are satisfactorily decolorized. For the peroxide bleach, the bath is prepared with one pint hydrogen peroxide, 12 vols. per 10 pounds of feathers. After the bath has been made feebly alkaline with ammonia, the stock is entered and well pounded for a few minutes. The bath is then heated during a half hour to about 120° F., after which the steam is turned off and the feathers left to steep in the cooling bath for 8 to 10 hours. The bags are then plunged into a rinsing bath containing cold water.

### Chemical Bleaching Process

If the feathers are to be bleached with bisulfite of soda, the bath is set with 1½ pints of bisulfite of soda 70-80° Tw. and one fluid ounce of sulfuric acid per 10 pounds of feathers. Then the stock is allowed to steep in the cold, freshly prepared bleaching bath for 1 to 2 hours, after which it is rinsed in clean cold water. The bisulfite bleach is a cheaper process to carry out than the hydrogen peroxide bleach, but the white is not so lasting as in the other instance, the feathers gradually assuming a yellowish hue.

After the feathers have been cleaned and bleached, they are hydroextracted, then emptied out of the bags into a chute. They are blown along this by air from a rotary blower and are then deposited in a large cylinder covered with a fine-mesh rustless wire netting and fitted with a series of internal baffles in order to agitate the stock. When this contrivance has been filled with feathers it is set in motion, and during the slow rotations upon the central shaft the feathers are dried by exposure to a current of hot air forced through a series of small holes bored into the cylinder shaft.

### Dyeing Feathers

Basic colors are dyed in a neutral bath at a temperature of 80° to 100° F. for about an hour, and they require no tannin mordant and are quite simple to dye. Acid dyestuffs in general are applied by boiling one or two hours with 10 to 20 per cent Glauber's salt crystals and 2 to 8 per cent sulfuric acid 168° Tw. Oxalic acid can be used, which in moderate quantities will make the acid dye take quite satisfactorily and even at a boiling temperature will not burn the most delicate flues.

When feathers are dyed in a cold or lukewarm or even fairly hot bath, the flue will dye almost immediately and the horny parts very slowly. However, if the temperature is raised, almost to the boiling point before the feathers are immersed, the butt and stem will dye rapidly and well while the flues remain almost white. To dye feathers evenly, it is necessary to first dye in boiling bath, allow bath to cool down, and then dye flues quickly to shade in the warm dye liquor. After the desired shade has been reached, the feathers are rinsed thoroughly in warm water to remove loose color and the acid.

Goose or chicken feathers are dried in sieve-like boxes which are kept in a shaking motion, steam-heated coils being placed underneath to hasten the drying operation.

Toy manufacturers, in order to avoid distorting the feathers during dyeing in hot liquor, handle the stock in frames and clamps. The apparatus consists of a rectangular-shaped stainless metal block perforated with a number of holes for insertion of the feather butts. These blocks commonly hold several gross of feathers spaced about one-half inch apart—staggered formation. The block and its contents are lowered into a shallow trough containing the dye and there left to steep until the process is complete.

### Producing Substitute Products

The needs of our army and navy for sleeping bags far exceed the production of duck and goose feathers, which are used in the manufacture of these bags. On February 24, the War Production Board issued an order that these two varieties of feathers may be used only for filling defense orders and and are to be sold only to dealers approved by the Defense Supplies Corporation of manufacturers handling such orders. Civilians are being urged not to purchase any duck or goose feather-filled articles.

For the past several years, the big bulk of chicken feathers have not had a ready market, and it did not pay the processor to salvage them. A few months ago a minimum price of 5 cents per pound was set, by government request.

Feathers can be utilized not only as such but can also be converted into substitute materials to replace products now unobtainable.

Feathers are largely protein and water. The chemical composition of a feather is given as 73.15 per cent protein, 21.6 per cent water, 1.01 per cent fat, and 1.11 per cent ash.

In the decomposition of feathers, that is, placing them in a closed retort and subjecting them to heat, the resulting carbon is a light scaly mass resembling fused coke tar and containing large amounts of ammonium carbonate.

Experimental work is under way at the government's regional research laboratory to determine processes by which feathers can be converted into adhesives for plywood.

### Feathers for Feed

It was found that feathers, processed to make them digestible, were a valuable protein supplement to the poultry ration. The breakdown process which renders the feathers digestible makes available a product containing 62 per cent protein. Nine to 12 per cent of this protein is cystine, needed for feather growth in chickens. At present, this method would be too costly to be practical, but there are possibilities in the use of feathers as a source of protein.

A number of tests over a period of years have proved the efficacy of the use of featherers as fertilizer, and recently it was reported that about 2 tons of turkey feathers to the acre yielded excellent crop results.

In the light of the research work that has been done and that is now going on to determine other uses for feathers, it seems likely that even after the present emergency is over we will find feathers occupying a prominent place in the chemurgic field.

## *Pink Lungs Show Poison*

Pink lungs reveal carbon monoxide poisoning in baby turkeys and chicks. In a poorly ventilated brooder house, a farmer may actually gas his turkey poults or baby chicks while trying to shield them from drafts in stormy weather or at night. A sooty brooder stove, combined with bad ventilation, may cause deaths that might be blamed on other causes.

Investigating the high percentage of loss among baby turkeys delivered in good condition from hatcheries to local poultrymen, the Denver Branch Pathological Laboratory of the USDA found no external symptoms of carbon monoxide poisoning — even when they suspected it. Chemical blood tests, however, were conclusive. Physical examination confirmed the positive cases by showing the abnormally pink lungs that result from carbon monoxide poisoning.

The laboratory recommends that turkey growers give special attention to good ventilation in their brooder house to admit enough air for safety while still protecting the young birds from drafts. Before placing baby birds in the brooder house it is also important to clean coal, wood or oil burning brooder stoves thoroughly to remove all soot that might clog the burners and help form dangerous carbon monoxide gas.

—U. S. Egg and Poultry Magazine, July, 1942.

RATS burrowed beneath the concrete floors of S. Eyles' poultry house in Clarendon, South Africa, and were impossible to get rid of by customary methods. To get the rats, Mr. Eyles placed a bottomless can over the holes and filled the can with fine sand and grit. In burrowing their way out, the rats filled up their own holes and, not ever being able to reach the top, died, says a report in Poultry, Australian poultry journal.

# POULTRY RESEARCH

### Fleshing Mash vs. Grain in Maintaining Body Weights

Heavy feeding of grain gave as good results as the feeding of a wet fleshing mash in a three-year test at the North Dakota Agricultural Experiment Station, reports G. P. Goodearl in that station's Bulletin 301.

Egg production, weight of eggs, mortality, total feed consumption, feed per dozen eggs, feed cost, and maintenance of body weight differed but very little with the two systems of feeding.

### Limited Range for Turkeys

When turkeys were confined to a limited area and moved to a fresh range weekly, there was no significant difference in growth or finish between groups allowed 300 to 400, 50 to 75, or 25 to 40 square feet of range per bird, report T. T. Milby and R. B. Thompson of the Oklahoma Agricultural Experiment Station in Poultry Science (Vol. 21, No. 3).

When but 10 to 15 square feet of range was allowed per bird, growth was retarded, feather picking developed, and market quality was reduced.

Differences in feed consumption per unit of gain were insignificant, as were those in mortality. Turkeys grown in complete confinement did as well as those grown on Bermuda grass range. In confined groups, feed consumption per unit of gain was slightly higher than for range groups.

### Proso Millet vs. Corn for Growing Turkeys

Proso millet may be used to replace either part or all of the corn in the North Dakota Experiment Station turkey growing ration, report G. P. Goodearl and F. E. Moore in that station's Bulletin 303.

When proso millet was substituted, better growth resulted and a better finish was obtained, more turkeys dressing in the top grades. Slightly more feed was required per pound of gain with proso. Neither percentage shrink nor mortality were significantly affected by the change.

### Nutrition and Growth Variability

Variability in the growth of chicks is closely related to efficiency of feed utilization, appetite, and adult body size. Variability may be increased by a prolonged defect in the diet and may be decreased by individual control of feed.

The probable effect of diet on variability should be considered before beginning an experiment, so that sufficient numbers of birds may be used to make differences noted significant, suggest J. C. Hammond and H. R. Bird, who carried out the variability studies, in Poultry Science (Vol. 21, No. 3).

### Meeting Vitamin K Deficiency

Neither vitamin "P" (from hesperidin), ascorbic acid (vitamin C), or vitamin D had any effect on the hemorrhagic condition shown by chicks severely deficient in vitamin K in tests carried on by J. T. Correll and E. C. Wise of the Upjohn Company, Kalamazoo, Mich., says a report in Poultry Science (Vol. 21, No. 3).

### Choline and Yeast in Chick Nutrition

Approximately 0.15 per cent choline must be added to a ration containing sufficient manganese in order to get maximum results in preventing perosis, report P. R. Record and R. M. Bethke of the Ohio Agricultural Experiment Station in Poultry Science (Vol. 21, No. 3).

Dried brewer's yeast was found to contain something in addition to choline and the known members of the vitamin B complex which is essential to chicks.

Soybean phosphatides and soybean lecithin were effective in promoting growth and controlling perosis. Methionine added to the basal ration resulted in increased growth without preventing perosis, indicating that methionine is essential for chick growth.

### Pellets vs. Loose Mash for Growing Turkeys

When the same mash formula was used, the feeding of turkey starter and grower in pellets, as compared to feeding of the mash in loose form, resulted in better growth from hatch to marketing time, better market finish and greater freedom from pin feathers, slightly higher mortality, less feed per pound of gain, and slightly (though not significantly) less shrinkage from live to cool dressed weight, report G. P. Goodearl and F. E. Moore in North Dakota Agricultural Experiment Station Bulletin 303.

### Turkey Poults Poisoned by Whorled Milkweed

Whorled milkweed, found in southern Colorado, southwestern Kansas, northern New Mexico and Arizona, southern Utah, and possibly in parts of Nevada, Oklahoma, and the Texas Panhandle, is poisonous to turkeys, resulting in death when fed at the rate of 1 gram of milkweed per 100 grams of turkey weight, reports G. W. Stiles of the U. S. Department of Agriculture's Denver Pathological Laboratory in Poultry Science (Vol. 21, No. 3).

### Shank Color and Production

Differences between pullets in the component factors contributing to total egg production cannot be accurately predicted by examining them for degree of pigmentation in their shanks after approximately three months of production, reports I. M. Lerner of the California Agricultural Experiment Station in the Journal of Agricultural Research (Vol. 64, No. 6).

Many factors contribute to differences in shank color, and, although degree of pigmentation may be used in indentifying low or nonproducing individuals, such factors as maturity, rate of lay, and pause, all of which contribute to total production, cannot be determined accurately by observations of shank color.

### Hens Poisoned by Quicklime

Poisoning of hens by quicklime, used as a disinfectant in a poultry house, is reported in the Journal of the American Veterinary Medical Association, July, 1942, by George W. Stiles. Quicklime spread on dropping boards and in the litter was picked up by hens, resulting in injury to the crop lining and, eventually, death. A few affected birds recovered when fed dilute vinegar.

It is recommended that quicklime be used only when finely powdered and that it should be well spread out, so as to make it difficult for birds to pick up any large quantities of the material.

### Time of Insemination and Per Cent Fertility

Highest average fertility resulted in birds inseminated immediately after an egg had been laid, while birds inseminated when a hard shelled egg was in the uterus showed a significant tendency towards infertility, report O. K. Moore and T. C. Byerly on work carried on at the University of Maryland, in Poultry Science (Vol. 21, No. 3).

Maximum fertility was obtained three to four days following insemination and remained at a peak for a short interval.

### Poults' Vitamin D Requirements

Turkey poults reared in confinement without sunshine need a minimum of 80 A. O. A. C. chick units of vitamin D per 100 grams of feed (supplied for fortified cod liver oil or activated animal provitamin D) for satisfactory growth and calcification, report J. S. Carver and M. Rhian of the Washington Agricultural Experiment Station in Poultry Science (Vol. 21, No. 3).

Higher levels of vitamin D resulted in no significant increase in bone ash.

# Synovitis of Turkeys

By D. E. MADSEN
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*Reprinted from Turkey World*

THE term "synovitis" is another name for an arthritis-like disease which was reported in 1933 by Jungherr. The name is more descriptive of the disease than arthritis because the articular joint itself is not involved.

This disease was first observed in Utah in 1935, and since that time it has become increasingly significant as a factor in profitable turkey production. A high percentage of the flocks now have a few such cases. At present, it is not known why the disease remains rather quiescent in some flocks, while in others it assumes epidemic proportions. From 2 to 10 per cent of the flock may become affected.

## Symptoms Vary

The symptoms and course of the disease will vary greatly, depending on whether the attack is acute or chronic. Acutely attacked birds succumb within 48 hours after symptoms are first noted. Other birds may have an unimpaired appetite and live for many weeks. There are, of course, all gradations between the above two courses.

In the acute type, symptoms begin with depression and poor appetite. Nearly always, watery, distinctly sulphur-colored droppings are present which are not readily differentiated from the droppings found in blackhead. Affected birds assume a "squat" position and when disturbed cry out as if movement produced pain. The skin about the head parts may assume a dark blue color. The majority of cases, but not all, show a hot painful swelling above the hock joint. Upon pressure with the finger, the swelling fluctuates, thus indicating the presence of fluid exudate. It is not uncommon to note these same type of swellings in the region of the foot. In some respects, the foot swelling is similar to so-called bumble-foot of chickens, although it continues up higher and is not confined entirely to the foot pad, as is the case in bumble-foot. In chronic cases, lameness is the chief symptom.

## Autopsy Findings

Autopsy of acute cases shows an enlarged and dark liver. The kidneys may be enlarged. There is an inflammation of the inner lining of the intestines, as disclosed by a distinct redness. The reddening may be diffuse or occur in blotches. The contents of the intestines are watery and yellowish colored. Some of the muscle tendons just above the hock joint are normally enclosed in membranous sheaths and surrounded by synovial fluid (joint water). This fluid is increased in amount because of the infection present. Consequently the sheaths bulge and produce the characteristic swelling noted.

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Turkey World, February, 1942)

The synovial fluid contains yellowish particles made up of fibrin, pus cells, and bacteria. The membranes surrounding this material are thickened and reddened. Occasionally, these changes are observed, but in much lesser degree, in the region of the joint above the hock joint. In a few cases, a yellowish cheesy material has been noted under the skin in the region of the keel bone or in the region of the thigh.

## What is the Causative Organism?

Cultures prepared from affected tissues always show the presence of bacteria which belong to the type termed staphylococcus. In nearly all cases, this organism also can be obtained directly from the blood stream. When these germs are injected into the blood stream of other turkeys, death results in 5 to 7 days. Approximately one-half of the turkeys so injected develop the characteristic leg swellings prior to death. These germs do not produce sickness in chickens, although rabbits succumb following injection.

In certain types of culture media, many strains of germs belonging to the staphylococcus group produce powerful exotoxins which are capable of causing serious illness or death. In many instances, protective vaccines called "toxoids" have been prepared from such exotoxins. However, in the turkey strains of staphylococci studied by the author, no exotoxins could be demonstrated.

## Mode of Entrance Uncertain

The method by which the organism gains entrance to the bird has not been determined definitely. Because of the swellings which occur in the legs, one might postulate that the germ gains entrance through injuries to the foot or leg. However, an examination of the history of outbreaks does not suggest that such injuries occur. The fact that swellings in the joint region often take place when the germs are experimentally injected directly into the blood stream suggests that the germ first gains entrance to the blood stream from intestinal tract (through food and water) and later localizes in the synovial structures of leg.

It may well be that some condition of feeding and management make the intestinal tract more vulnerable to penetration by this organism. It is also possible that laxity in sanitary precautions permits bacterial concentrations which eventually overwhelm the protective mechanism of the intestinal lining, allowing the entrance to the body of pathogenic staphylococci.

When turkeys are confined to wire floors, they often develop "corn-like" enlargements of the foot pad as the result of uneven pressure on that structure. This probably has no relation to synovitis. Soft swellings above the hock joints must be regarded as true synovitis.

### Little Known About Control

It is difficult to institute control measures when so little is known concerning the conditions which favor development of the disease. Certainly, the general vigor of the flock should be held at a high level by feeding according to approved methods.

The use of an autogenous bacterin has not proved successful in preliminary investigations. The recent use of sulfanilamide compounds in combatting various infections in humans and domestic animals has prompted their use with this turkey disease. Most of the trials made by the author were made with sulfathiazole. Preliminary studies showed that in order to maintain sulfathiazole at an optimum level in the blood, approximately 0.5 grams daily per pound body weight is necessary. Lower levels of administration sometimes resulted in optimum blood levels but this was not the rule. In some instances birds were dosed twice daily; in other cases five times daily.

Results from some of the earlier trials in feeding sulfathiazole cannot be readily evaluated because sufficient dosage was not employed. In later trials, six affected birds received sulfathiazole treatment for a period of two to nine days, the period depending on whether the birds lived as long as nine days. The drug was administered five times daily and optimum blood levels were maintained. The birds lived the following number of days after the beginning of treatment: one, two, seven, nine, fourteen, and thirty-one. Staphylococci were isolated from the internal organs after death. It is concluded therefore that, under the conditions of this experiment, sulfathiazole did not promote recovery from staphylococcic synovitis.

Limited trials using sulfapyridine and sulfanilamide were likewise non-effective in promoting recovery. Since there is no known specific treatment, and inasmuch as definite knowledge is lacking concerning the means by which the disease spreads, it would appear to be sound practice to regard it as an infectious contagious disease and to take all general precautions which preclude control of any such infectious disease. It is advisable to separate affected birds from the main flock as soon as they are detected. If ample range is available, it is advisable to move them frequently to fresh range. Water containers should be cleaned and disinfected daily.

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# Diary of a Poultryman

By **PERCY S. WHITE**
Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**Aug. 1**—More chicken burking has started on the range. Something happened to two birds last night—a pullet and a cockerel. Whenever I lose a cockerel, I don't consider the loss very great, but put much stress on the principle. The principle is that there is some kind of a wild animal on the rampage.

Donnie cyanided several varmint holes, putting a charge in each hole great enough to kill even if the hole reached part way to China. A holely burlap bag was stuck in the hole and this was covered with soil, making the hole air tight. He heard something coughing down in the hole as if the death rattle was already lurking in its bones.

**Aug. 2**—This was mostly a day of straightening up, getting ready for next week's work. All cleaning tools have been moved to the west house, which is next on the cleaning schedule. Monday the birds in the west house will be moved to the west end of the block house.

**Aug. 4**—Neighbor Cal Ebert decided he would sell a few bushels of his large crop of oats, so he came around to what I suppose he thought was his nearest market. It did not take long to close the deal.

I always keep a supply of empty bags on tap, readily available, so to speak, and in short order the oats were in my bins, the check written, and everyone was on his regular routine work. There is nothing like having plenty of feed in the bins or plenty of dry bedding in the winter.

**Aug. 6** — The general cleaning in the west house is progressing satisfactorily. This cleaning business takes time, if done well. It usually takes about a week to the house, if there is not too much outside work to do. I am thoroughly sold on the idea of hot lye water and creosote as disinfectants. It doesn't seem to me that it would be possible for very many bugs to survive the application of the combination. Harold was a bit careless with the lye solution and as a result had his hand "et." Donnie's shoe soles look rather peculiar, to say the least. It is powerful stuff, this lye water, the way we mix it.

**Aug. 8** — One of our at-the-door egg customers says she doesn't like our eggs. They are too fresh, accord-

Everybodys Poultry Magazine Pub. Co., Inc., Hanover, Pa.
(Everybodys Poultry Magazine, July-August, 1942)

ing to her way of thinking. Of course, I didn't say anything, for long ago I gave up trying to argue with the women. The argument can never be won and life is too short to even try. But Kid White verified the fact that a too-fresh egg would not peel with a pleasing effect when boiled. So that is that.

By and large, I think it is a good idea to try to produce too-fresh eggs. I have been trying for 16 years, with what I think is quite a degree of success. My suggestion is that if eggs don't peel readily, buy them two or three weeks in advance.

**Aug. 9**—I found another cracker box in an egg case. As far as I am concerned, cracker boxes might be fillers in that they take up space for someone selling an empty egg case, but I certainly can't use one in my work. I don't know if I am mean enough to sell someone an empty case with half the flats and fillers gone and in their place empty cartons or not. On the other hand, it might not be any worse, if as bad, as selling an empty full of cockroaches. Kid White says this is the most low-down trick that ever was. She ought to know.

**Aug. 12** — Well, I bought 100 bushels of wheat, distressed wheat, slightly damp. I felt that I couldn't let it go by when I was able to buy at a 15-cent discount on the market price.

**Aug. 14**—I had a couple of coops of old hens on the auction. Tomorrow when I take the eggs in, I will find out if there was any residue left after the expenses were paid. There certainly can't be very much left, for there was not very much left of the birds to sell.

**Aug. 16**—A visitor visited for about three hours this afternoon. It is great stuff, this thing of getting interested in the chicken business. The realities, like married life, are soon realized. But it is refreshing to talk to people who are chuck full of "vim, vigor, and vitality." He wanted to keep 5,000 layers, or maybe 25,000, perhaps 50,000. Oh! he wanted to keep the whole world full of chickens. George Pohm, poultryman extraordinary, once said that the boys could knock it off for 10 years, perhaps 15, but that the day of diminishing returns would finally arrive. The statement is true.

**Aug. 19**—Egg room temperature is 62 and relative humidity is 94. Offhand, I would say that is damp, very near the dew point. Every night when I am packing eggs I wear rubbers, a leather coat, and an overall jacket as extras. Even wearing all these extra clothes, I feel damp when I have finished, as it takes about 2 hours.

**Aug. 20**—About this time of the year I begin to get rather shaky inside as well as out. The young stock is eating to a fare-ye-well and, of course, the old stock is eating too. It is a double dose, buying feed for all the stock when production is on the decline. Egg prices are advancing, but lower production is not being offset by the increase. In other words, the weekly egg check is shrinking.

**Aug. 21**—Kid White, Janey, and I took time after dinner to repair a collection of cast-off fillers. Some of the partitions had broken; others had damaged corners that would not stay put. A few of the broken partitions could be spliced with a similar piece about four divisions long. The corners, however, were birds of a different color. At least they looked that way to us. One of the side rails and often both were removed in the entirety and another one inserted. This meant destroying some fillers, but the worst ones were used for replacements. All in all, I think we did a good job, even if it did take time.

**Aug. 23**—This young stock sure drinks a lot of water. Incidently, they also eat a lot of feed. Of the two, the water is the cheapest, even if I do have to pump every drop with electricity.

All of the range fountains are so placed that during the heat of the day they are in the shade. In the mornings the sun shines on them, which I think is a good idea, as it keeps the surrounding area dry and, I hope, free from contamination, to at least some extent.

**Aug. 25**—The north house will be finished this week-end. This means that we are up to schedule, for Donnie goes back to school the day after Labor Day. I am always glad for him to go back to school, glad that he has the opportunity to go, but the Old Man sure misses him. It just seems to me that the bottom has dropped out of everything, those first two or three weeks until I get used to it.

So far this season I have used Canadian peat moss, as imported moss has not been available. But I think that in one of these houses, probably the east, which is standing idle, airing, I will use native peat from a bog a few miles down here in the sticks.

**Aug. 26**—It is noticeable that the days are getting shorter. Up to the present we haven't had to start the evening feeding earlier, but the birds are going to roost quicker after feeding than they did a few weeks ago. About the first of the month, I think I will put the lights on the older hens. Not too much light, but just enough to touch them up a wee bit, so to speak. The fall and winter months are when the layers get the works.

**Aug. 28**—For some reason or other I am behind with the egg packing. Sometimes I begin to realize that I am an old man, slowing down, feet starting to drag the ground. There is too much corruption in the air for me to feel good, so the first heavy frost is always welcome. All this probably accounts for the fact that I am behind with the eggs.

**Aug. 29**—There is a spunky little pedigreed cockerel out on the range that is a real rooster. I believe he has more pep than any half dozen others. Every time I pass through his territory he acts like he wants to fight. He will sidle along beside me and make all kinds of noises, head down and wings dragging the ground. When he thinks I am not looking, he slips up behind and grabs hold of my overalls. All this looks comic now, but in a few months such a bird is liable to become dangerous. A fighting cock bird with sharp spurs can spur through a pants leg in less time than it takes to tell about it.

**Aug. 30**—And so ends the month, with all the work up to date. The north house was finished a couple of days ago. The next big cleaning job is the brooder houses. From now on until pullet harvesting, it is a question of the regular work and catching up on odds and ends.

## *Was It a Swoose?*

A peculiar bird appeared a few months ago with a flock of Canada geese that were wintering at Horseshoe Lake in southern Illinois. Apparently it was a cross between a swan and a goose, and local residents dubbed it a "swoose."

Its body was longer than that of a goose, and it stood several inches taller. Instead of white cheeks and black neck, this bird had head and neck that were pure white, and Dr. William H. Elder, wildlife technician of the Illinois Natural History Survey, reports it carried its head and neck in swan-like posture. It was more dignified than its smaller companions, showed none of their restlessness of movement, and kept somewhat apart from the main concentration.

Crosses between species in the wild and rare, but they have been widely distributed. Dr. Lawrence Hicks of Ohio Wildlife Research Unit has the skin of a wild drake that shows every evidence of being a cross between a pintail and a mallard. E. A. McIlhenny, of Avery Island, Louisiana, caught in one of his branding traps a bird that appeared to be a cross between a green-winged teal and a pintail.

—Capper's Farmer, Copyright July, 1942.

# VIEWS OF THE EDITORS

### Experience is a Hard Teacher

Even the smartest of us has to bump his head against a wall now and then before being convinced that he can't always butt it over. John L. Lewis, an old political fox and labor czar, is the latest to learn that it is a fundamental blunder to underestimate the intelligence of the sucker you are about to fleece. He is now in the process of taking a $500,000 short course on "how not to organize dairy farmers" — and all because he underestimated the intelligence of American farmers.

Thousands of stories that make the gullible farmer the butt of the joke had convinced poor old John that here was a fertile field worthy of his cultivation. But he, of all people, should have known that you can't believe everything you hear, and he made the tragic mistake of under-estimating our mental ability so far that it has rubbed our fur the wrong way.

Now we farmers are normally an easy going lot and we periodically take a fleecing from city slickers with well-oiled "get-rich-quick" schemes. We're even fascinated and taken in by variations of the old shell game at our county fairs every fall, but the "cock and bull" story advanced by "Dear John" and his henchmen for the organization of dairymen into District 50 of the United Mine Workers calls for such starry-eyed faith in the good fairy that it's an insult to our intelligence and has made us all fighting mad.

John! John! I'm disappointed in you! I thought you were smarter than that—but let this be a lesson to you!

—Washcoegg, June, 1942.

### Perhaps Not a Pipe-Dream

Dehydration of perishables has been given a particularly strong impetus under the influences of war. The reasons are obvious — serious shortage of tin normally used in cans for canning saving in cargo tonnage in shipping, conservation of refrigeration, and easing the burden of railroad and truck transportation. A wide variety of foods are already being dried in large quantity, importantly including such items as eggs, milk, fruits, vegetables, and, recently, meats.

With only a cursory knowledge of dehydrating technique, it seems possible that poultry meat might well be added to the already long list of dried food products. Such a procedure, if at all practical, seems eminently desirable under existing conditions. It would surely be beneficial if dried poultry meat could be shipped to our armed forces abroad and to our allies in the same manner as other dried food products.

Of poultry, we have, happily, a great sufficiency in this country. Production has increased tremendously during the past year in order to satisfy the vast requirements of the government for dried eggs and its enlarging need for fresh and canned poultry. Certainly the possibilities of dehydration of poultry meat, if commercially practical, present a valuable potential, both from the standpoint of aiding in the stupendous task of serving our far-flung food supply lines and also from the view of eventual benefit to the poultry industry through affording a broader channel of distribution.

—American Egg and Poultry Review, June, 1942.

### Farmers and "Hot Cargo" Tactics

Congress is considering legislation which would make it a felony to obstruct the free flow of traffic. Farmers have had the unhappy experience of needing the protection of such a law when their produce has been damaged or destroyed in shipments disturbed by labor racketeering.

One thing such a law really should put out of business is the "hot cargo" treachery of some labor unions. Without strong control, the "hot cargo" mischief can be used as an instrument whereby a handful of malcontents in one union can paralyze the marketing of produce from farm to consumer and involve great loss and inconvenience to no end of innocent victims of the dispute.

A union which cannot acquire members or serve its purpose by more reasonable methods than those of stage coach robbers should not have members.

On principle, at least, there is no more reason to wink at disrupting traffic in goods for any selfish interest than there is to permit pilfering of the mails.

—Eastern States Cooperator, August, 1942.

### "All the Extra Eggs"

Purchases of eggs for lend-lease shipments and other purposes are going far beyond what government buyers anticipated in the spring of 1941 when the program went into effect. Eggs have proved to be highly desirable for shipment abroad, for in their dried form they provide a highly nutritious food in compact form – a factor highly important when ships aren't too plentiful.

In June, the U. S. Department of Agriculture indicated that it could "use all the extra eggs we can produce this year through the efficient use of existing facilities." The reference to "efficient use of existing facilities" is worth noting.

How long will the demand for these extra eggs hold up? Our guess is that it will continue for a year or two after the war. It will take some time for those countries now impoverished and under the iron heel of the enemy to rebuild their flocks. Great quantities of food will be needed. And we'll probably supply it as a gift for humanitarian reasons and because our nation will still be best equipped to do so.

—Everybodys Poultry Magazine, July-August, 1942.

## New Uses for Chicken Feathers

A branch of our army suddenly bought a million pounds of colored chicken body feathers – and they didn't buy them for pillows.

"We're experimenting," is all they would say. But almost at once government officials started asking poultry packers to save every feather they pluck off a fowl. So it looks as if a new use has been found which will require huge quantities of feathers—if a million pounds is only an experimental sample.

We do know that for some time now the British government has been buying, for military purposes, all the feathers it has been able to get. And we know that for eight years Russia hasn't exported any of its down. Last winter, when German soldiers were literally freezing to death, feathers helped to protect the Russian army against the killing cold. Feathers—of all things—helped the Russians to turn back troops that could not be turned aside by the steel fortifications of the Maginot line!

We know that down is being used to line jackets for our parachute troops. Feathers from waterfowl are particularly valuable—duck and goose feathers being worth about 10 times as much per pound as the ducks and geese. They should all be saved because they will be needed.

Chicken feathers are an animal fibre. All other animal fibres are worth about as much per pound as the carcasses. In some cases – like duck and goose feathers and wool, for instance – the fibres are worth more per pound than the carcasses.

Only chicken feathers—except for a small quantity that went into pillows—have been destroyed.

Chemists are experimenting with feathers and what will come of it, no one knows. It's possible, I suppose, that a material can be made from them. If anyone thinks that's a crazy idea, just remember we're already making materials from coal and corn stalks and milk!

If a practical use is discovered for chicken feathers, it's entirely possible that they may some day bring as much per pound as the chickens themselves.

—Frank Priebe's Weekly Letter, June 18, 1942.

# Wild Turkeys Must be Really "Wild"

By H. H. KAUFFMAN
Pennsylvania State College

*Reprinted from Turkey World*

WILD turkeys are now being reared for game restocking purposes. With this type of turkey husbandry, new ideas, objectives, and breeding characteristics must be observed in judging these turkeys in the show ring, or selecting breeders for breeding flocks.

## Five Varieties

There are five different varieties recognized by ornithologists, and each variety has a fairly distinct range. The Eastern Wild Turkey ranged originally from New England to central Florida and from the Atlantic Coast to the plains. This variety is classified by its chestnut brown edgings on the back and tail feathers, and the breast feathers of the females.

The Florida Wild Turkey has a similar color pattern, except that the primary and secondary wing feathers are speckled. Its native range is the southern half of Florida. Two other varieties are found in the western part of the United States and Mexico. They are distinguished from the Eastern Wilds by their lighter edgings on the tail and back feathers and the breast feathers of the females.

The Ocellate Turkey of Central America has a more oblong shape than the North American turkeys and is not as easily domesticated. The Eastern Wild is the variety most commonly used for restocking purposes. It is found in the wild state and is one of the most popular game birds, from Pennsylvania south to the Gulf of Mexico in the wooded regions.

## Keeping Them Wild

The cardinal necessity of the game turkey is survival in the forests, and nature selects them with instincts and temperaments that fit them for the wilderness. These facts must be kept in mind when propagating turkeys for restocking purposes. No matter how plump their bodies, how regal and massive the toms with their gorgeous plumage and long beards, if propagated Wild Turkeys are not timid and do not answer the call of the wild when turned loose in the forests, they are not suited for releasing purposes. Some stocked Wild Turkeys have traveled for miles to get to a farmstead when released. These birds are utter waste as far as the efforts and expenses of conservationists are concerned.

The term Wild Turkey in this article is used to designate a definite variety of turkeys of certain type, natural color pattern and temperament, regardless of whether they are artificially reared or exist in the wilds.

## Wildness Must be Maintained

In breeding Wild Turkeys for game restocking purposes, the wild and timid instincts of their ancestors must be preserved. It may be necessary to reintroduce some fresh wild blood from the forests at intervals to emphasize these wild instincts and temperaments. These timid and shy birds are the sportsman's ideal of a clever game bird. They are more likely to stay in the woods when released, and are better fitted to survive the ravages of foxes hawks, owls, and other hardships of wild life.

What are some of the physical wild turkey characteristics that seem to be necessary to make Wild Turkeys able to survive? Audubon, the great American ornithologist and naturalist, who lived from 1785 to 1851, reported that owls were one of the wild turkey's worst natural enemies. He states that the owl stalks the turkeys from the trees. The turkey's best protection is to remain still, and when the owl strikes from the rear to throw their long tail feathers over their backs. With this procedure, the main tail feathers serve as a shield, and the owl's talons are filled up with large feathers instead of flesh from the turkey's body. Audubon states, "When an owl strikes a mother turkey with a brood, the young turkeys run for cover and hide while the owl's attention is distracted by its futile blow."

The Wild Turkey is often given credit for having the sharpest eye of any animal in the woods, and no doubt depends more on sight than on any other sense to escape its enemies. Turkeys brought down by the sportsman usually have large prominent eyes literally sticking out of their heads. This requires small, snaky, clean-cut heads free of any excess wrinkles, folds or caruncles to obstruct their vision.

## Crows Destroy Many Eggs

Naturalists contend that most of the first Wild Turkey eggs laid in the spring are destroyed by crows and other enemies because there is not enough cover in the forests for the hens to hide their nests. Crows will fly from tree to tree following hens to their nests to find their eggs, and the turkeys' best protection is heavily leaved underbrush to escape the eyes of the trailing crows.

It can be seen, thus, that while early laying and high egg production are assets of the domestic turkey, they can be liabilities and disadvantages of the turkey in the wilds.

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Turkey World, February, 1942)

The early laying Wild Turkey may deplete herself physically laying eggs for her enemies and is then not in her best breeding condition when the optimum laying, brooding, and rearing season arrives. The Wild Turkey hens that start to lay with the first bright days of spring may be at a disadvantage over their less fecund sisters which start laying toward the middle of spring.

### Early Broodiness Desired

After the wild hens have laid a nest of eggs, it is necessary that they become broody. At Pennsylvania State College Poultry Farm, domestic turkey hens have laid under trapnests as high as 70 eggs before becoming broody. This lack of broodiness is a commercial asset in the domestic hen, but a long laying period like that with the wild hen would be utter waste in stale eggs, and uncovered eggs while brooding. Broodiness and not excessive egg production is a prerequisite in the Wild Turkey.

Occasionally, wild toms of 25 pounds are reported, and Audubon reports a wild tom in Kentucky of 36 pounds. These are exceptional weights and impractical weight standards for a strain of game turkeys. Most adult toms brought out of the woods range between 16 and 18 pounds and hens from 7 to 10. Over-sized turkeys have more of a tendency to be sluggish and docile—lacking the instinct to answer the call of the wild. Large Wild Turkey toms that weigh 25 pounds need more feed for maintenance than the 15 pound males. It can be understood readily that the smaller type turkey is better fitted to winter over when there is a feed shortage than the larger individuals.

### Must Have Deep Keels

Breeders of domestic turkeys want thick meated, even keels, paying particular attention to eliminate the prominent point or knobby keel on the toms. Wild adult toms usually have prominent deep keels at the front, which taper directly to the pelvic bones. What is nature's reason for this conformation? The turkey is not primarily a flying bird. It is a sailing bird. Wild Turkeys when pursued in hilly country, usually run up hill, take to the air on top of the ridges, and sail down the mountain side or over on the next ridge. They will move their wings to gain elevation, but set them to sail or glide to cover most of the distance.

### Triangular Body for Sailing

This deep prominent keel point gives the mature tom's body a triangular shape and gives his body balance when sailing through the air with grace and ease. For this reason, the breeder of Wild Turkeys for game stocking purposes should select adult toms with deep, prominent, angular shaped keels, so they can be strong and balanced for flight. The domestic turkey breeder, no doubt, will continue to select toms with smooth, even keels that are nearer parallel to the backs.

### Tail Feathers for Defense

Wild Turkeys usually have relatively hard feathers with close woven webs that adhere tightly to each other. Width of feather usually goes with strong feather, and Wild Turkeys need a substantial coat to withstand the rigors of the weather. Audubon has told how the turkeys' main tail feathers serve in defense, as well as how they serve in flight. Broad and strong tail, wing, and body feathers are an asset in wild turkeys.

### Toms Fight for Leadership

Wild Turkey toms usually do not mate until they are two years old. while their domesticated cousins will mate before a year old. Why has nature found it necessary for that characteristic to develop in the wilds? With the forest inhabitants, there is a fairly even distribution of males and females. Since turkey males are polygamous, the strongest and most active do most of the mating. The young and immature males which display mating desires are not physically fit to challenge the prowess of mature toms and these cockerels may not live to reproduce their kind.

The type of Wild Turkey cockerel that survives, and later becomes the sire of many offspring is one which first develops a physical strength, endurance, and stamina. His courage and mating desires may not mature before he is two or three years old, but by that time his strength, courage, and experiences are backed up with a pair of strong, sharp spurs. It is then safer for this male's mating desires to become evident because he is now a fit individual to challenge the older males' lordships. Wild Turkey toms do not mate until two years old or older, because the law of the survival of the fittest operates to a high degree among the denizens in the wilds, and the males, to do mating, must be physically fit.

### Toms Fight for Mates

What are the experiences of breeders of Wild Turkeys? If a yearling male is placed in a breeding pen with an adult tom, the yearling is usually cowed by the adult. If the young tom struts or gobbles, it is accepted as a challenge by the older bird, and he usually gives chase. A yearling tom in a small breeding pen can survive without any body injury, if he does not challenge the tom of the flock. When a younger tom in a breeding pen challenges an adult tom, there is either a battle which ends in a definite victory, or there may be a draw and the females are divided. In that case, the female selects the male she desires.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

### June Egg Production

| State and Division | Number of layers on hand during June 1941 | 1942 | Eggs per 100 layers 1941 | 1942 | Total eggs produced During June 1941 | 1942 | Jan. to June incl. 1941 | 1942 |
|---|---|---|---|---|---|---|---|---|
| | Thousands | | Number | | Millions | | | |
| Me. | 1,452 | 1,554 | 1,776 | 1,734 | 26 | 27 | 164 | 174 |
| N. H. | 1,209 | 1,319 | 1,686 | 1,638 | 20 | 22 | 129 | 143 |
| Vt. | 659 | 737 | 1,818 | 1,812 | 12 | 13 | 69 | 79 |
| Mass. | 3,161 | 3,269 | 1,692 | 1,716 | 53 | 56 | 339 | 362 |
| R. I. | 372 | 358 | 1,620 | 1,767 | 6 | 6 | 40 | 41 |
| Conn. | 1,987 | 2,188 | 1,638 | 1,686 | 33 | 37 | 206 | 222 |
| N. Y. | 10,352 | 10,805 | 1,641 | 1,635 | 170 | 177 | 1,048 | 1,079 |
| N. J. | 4,306 | 4,862 | 1,542 | 1,572 | 66 | 76 | 477 | 519 |
| Pa. | 12,364 | 13,514 | 1,602 | 1,596 | 198 | 216 | 1,255 | 1,407 |
| N. Atl. | 35,862 | 38,606 | 1,628 | 1,632 | 584 | 630 | 3,727 | 4,026 |
| Ohio | 14,306 | 14,973 | 1,599 | 1,623 | 229 | 243 | 1,378 | 1,503 |
| Ind. | 9,265 | 10,176 | 1,584 | 1,608 | 147 | 164 | 922 | 1,046 |
| Ill. | 13,760 | 15,540 | 1,458 | 1,488 | 201 | 231 | 1,241 | 1,431 |
| Mich. | 7,893 | 8,550 | 1,650 | 1,614 | 130 | 138 | 807 | 852 |
| Wis. | 11,000 | 12,310 | 1,608 | 1,620 | 177 | 199 | 1,018 | 1,187 |
| E. N. Cent. | 56,224 | 61,549 | 1,572 | 1,584 | 884 | 975 | 5,366 | 6,019 |
| Minn. | 14,714 | 17,166 | 1,614 | 1,650 | 237 | 283 | 1,350 | 1,690 |
| Iowa | 21,210 | 24,847 | 1,476 | 1,545 | 313 | 384 | 1,844 | 2,262 |
| Mo. | 14,649 | 16,739 | 1,476 | 1,524 | 216 | 255 | 1,352 | 1,595 |
| N. Dak. | 3,049 | 3,636 | 1,548 | 1,548 | 47 | 56 | 244 | 325 |
| S. Dak. | 4,862 | 6,004 | 1,488 | 1,539 | 72 | 92 | 398 | 545 |
| Nebr. | 8,040 | 10,108 | 1,587 | 1,611 | 128 | 163 | 782 | 1,007 |
| Kans. | 9,883 | 11,930 | 1,560 | 1,569 | 154 | 187 | 966 | 1,210 |
| W. N. Cent. | 76,407 | 90,430 | 1,527 | 1,570 | 1,167 | 1,420 | 6,936 | 8,634 |
| Del. | 680 | 722 | 1,539 | 1,527 | 10 | 11 | 70 | 74 |
| Md. | 2,350 | 2,624 | 1,416 | 1,479 | 33 | 39 | 219 | 241 |
| Va. | 5,392 | 6,404 | 1,404 | 1,428 | 76 | 91 | 510 | 594 |
| W. Va. | 2,640 | 3,029 | 1,554 | 1,593 | 41 | 48 | 245 | 288 |
| N. C. | 5,387 | 6,321 | 1,320 | 1,317 | 71 | 83 | 446 | 527 |
| S. C. | 2,257 | 2,558 | 1,200 | 1,203 | 27 | 31 | 167 | 190 |
| Ga. | 4,430 | 5,397 | 1,203 | 1,248 | 53 | 67 | 324 | 391 |
| Fla. | 1,353 | 1,512 | 1,320 | 1,398 | 18 | 21 | 122 | 133 |
| S. Atl. | 24,489 | 28,567 | 1,343 | 1,369 | 329 | 391 | 2,103 | 2,438 |
| Ky. | 5,332 | 6,991 | 1,482 | 1,476 | 79 | 103 | 531 | 691 |
| Tenn. | 5,733 | 6,784 | 1,317 | 1,347 | 76 | 91 | 491 | 581 |
| Ala. | 4,126 | 5,034 | 1,299 | 1,359 | 54 | 68 | 320 | 398 |
| Miss. | 4,296 | 5,172 | 1,161 | 1,194 | 50 | 62 | 297 | 358 |
| Ark. | 4,841 | 5,736 | 1,338 | 1,320 | 65 | 76 | 376 | 452 |
| La. | 2,859 | 3,231 | 1,107 | 1,143 | 32 | 37 | 196 | 226 |
| Okla. | 7,132 | 8,905 | 1,506 | 1,455 | 107 | 130 | 678 | 844 |
| Tex. | 17,744 | 20,814 | 1,416 | 1,392 | 251 | 290 | 1,529 | 1,734 |
| S. Cent. | 52,063 | 62,667 | 1,371 | 1,368 | 714 | 857 | 4,418 | 5,284 |
| Mont. | 1,405 | 1,546 | 1,578 | 1,557 | 22 | 24 | 125 | 144 |
| Idaho | 1,502 | 1,661 | 1,593 | 1,608 | 24 | 27 | 147 | 159 |
| Colo. | 2,170 | 2,680 | 1,545 | 1,581 | 34 | 42 | 198 | 238 |
| Utah | 1,607 | 1,700 | 1,611 | 1,701 | 26 | 29 | 162 | 176 |
| Wash. | 4,806 | 4,905 | 1,692 | 1,653 | 81 | 81 | 502 | 507 |
| Oreg. | 2,550 | 2,619 | 1,650 | 1,698 | 42 | 44 | 256 | 272 |
| Calif. | 10,283 | 11,366 | 1,500 | 1,596 | 154 | 181 | 996 | 1,103 |
| West. | 26,139 | 28,498 | 1,569 | 1,607 | 410 | 458 | 2,556 | 2,788 |
| U. S. | 271,184 | 310,317 | 1,507 | 1,525 | 4,088 | 4,731 | 25,106 | 29,189 |

Hens on farms laid 4,731,000,000 eggs in June, a record high production for the month—16 per cent above June last year and 24 per cent above the 10-year (1931-40) average. A record high June production was reached in all parts of the country except the western region, where the production was 10 per cent less than the record of June 1931. The total egg production during the first 6 months of this year was also the highest of record for the period—16 per cent larger than in the same period last year and 26 per cent above the 10-year average.

The rate of egg production per layer during June set a new high peak for the month—15.25 eggs per layer compared with 15.07 eggs in June last year and 14.22 eggs, the 10-year average. Hens in farm flocks laid an average of 85.63 eggs during the first half of 1942 which is 3 per cent more than the average hen laid during the first half of 1941. Hens lay about 60 per cent of their annual production of eggs during the first 6 months of the year.

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| Week Ending | Cases of Eggs 1942 | 1941 | % Chg. | Pounds of Poultry (000 omitted) 1942 | 1941 | % Chg. | Pounds of Young Stock (000 omitted) 1942 | 1941 | % Chg. | Pounds of Fowl (000 omitted) 1942 | 1941 | % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 4 | 240,587 | 200,270 | +20.13 | 4,018 | 3,104 | +29.42 | 1,273 | 1,334 | – 4.56 | 2,529 | 1,601 | +58.05 |
| July 11 | 272,102 | 194,256 | +40.07 | 3,931 | 2,745 | +43.20 | 1,507 | 1,088 | +38.51 | 2,227 | 1,429 | +55.82 |
| July 18 | 273,492 | 172,258 | +58.76 | 5,486 | 3,503 | +56.63 | 2,781 | 1,643 | +69.30 | 2,529 | 1,702 | +48.63 |
| July 25 | 238,963 | 176,375 | +35.48 | 5,151 | 3,670 | +40.35 | 2,488 | 1,818 | +36.82 | 2,495 | 1,626 | +53.39 |

# POULTRY STATISTICS

## Hens on Farms—Rate of Lay

### June Egg Production

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|---|---|---|---|---|---|---|---|---|
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| Vt. | 659 | 737 | 1,818 | 1,812 | 12 | 13 | 69 | 79 |
| Mass. | 3,161 | 3,269 | 1,692 | 1,716 | 53 | 56 | 339 | 362 |
| R. I. | 372 | 358 | 1,620 | 1,767 | 6 | 6 | 40 | 41 |
| Conn. | 1,987 | 2,188 | 1,638 | 1,686 | 33 | 37 | 206 | 222 |
| N. Y. | 10,352 | 10,805 | 1,641 | 1,635 | 170 | 177 | 1,048 | 1,079 |
| N. J. | 4,306 | 4,862 | 1,542 | 1,572 | 66 | 76 | 477 | 519 |
| Pa. | 12,364 | 13,514 | 1,602 | 1,596 | 198 | 216 | 1,255 | 1,407 |

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| State and Division | Number of layers on hand during June 1941 | Number of layers on hand during June 1942 | Eggs per 100 layers 1941 | Eggs per 100 layers 1942 | Total eggs produced During June 1941 | Total eggs produced During June 1942 | Total eggs produced Jan. to June Incl. 1941 | Total eggs produced Jan. to June Incl. 1942 |
|---|---|---|---|---|---|---|---|---|
| Utah | 1,607 | 1,700 | 1,611 | 1,701 | 26 | 29 | 162 | 176 |
| Wash. | 4,806 | 4,905 | 1,692 | 1,653 | 81 | 81 | 502 | 507 |
| Oreg. | 2,550 | 2,619 | 1,650 | 1,698 | 42 | 44 | 256 | 272 |
| Calif. | 10,283 | 11,366 | 1,500 | 1,596 | 154 | 181 | 996 | 1,103 |
| West. | 26,139 | 28,498 | 1,569 | 1,607 | 410 | 458 | 2,556 | 2,788 |
| U. S. | 271,184 | 310,317 | 1,507 | 1,525 | 4,088 | 4,731 | 25,106 | 29,189 |

Hens on farms laid 4,731,000,000 eggs in June, a record high production for the month—16 per cent above June last year and 24 per cent above the 10-year (1931-40) average. A record high June production was reached in all parts of the country except the western region, where the production was 10 per cent less than the record of June 1931. The total egg production during the first 6 months of this year was also the highest of record for the period—16 per cent larger than in the same period last year and 26 per cent above the 10-year average.

The rate of egg production per layer during June set a new high peak for the month—15.25 eggs per layer compared with 15.07 eggs in June last year and 14.22 eggs, the 10-year average. Hens in farm flocks laid an average of 85.63 eggs during the first half of 1942 which is 3 per cent more than the average hen laid during the first half of 1941. Hens lay about 60 per cent of their annual production of eggs during the first 6 months of the year.

Layers in farm flocks totaled 310,317,000 during June, the largest number on record for the month. This exceeded last June by 14 per cent and the 10-year average by 16 per cent. Large increases above a year ago were shown in all parts of the country, ranging from 8 per cent in the North Atlantic states to 20 per cent in the South Central states.

Farm holdings of young chickens increased 3.6 birds per flock during June compared with an increase of 8.2 birds during June last year. This indicates about an average late hatch this year compared with the largest late hatch of record last year. Because of the heavy total hatch this year the farm holdings of young chickens on July 1 were the largest of record—8 per cent above a year ago and 12 per cent above the 10-year (1931-40) average. The holdings of young chickens on July 1 compared with a year ago probably fail to reflect the full increase in young chickens this year, because the marketings of cockerels in June were much greater than during June last year.

—Comment from U. S. D. A. Poultry and Egg Production Report.

## Receipts of Eggs and Poultry

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1942 | Cases of Eggs 1941 | Cases of Eggs % Chg. | Pounds of Poultry (000 omitted) 1942 | Pounds of Poultry (000 omitted) 1941 | Pounds of Poultry (000 omitted) % Chg. | Pounds of Young Stock (000 omitted) 1942 | Pounds of Young Stock (000 omitted) 1941 | Pounds of Young Stock (000 omitted) % Chg. | Pounds of Fowl (000 omitted) 1942 | Pounds of Fowl (000 omitted) 1941 | Pounds of Fowl (000 omitted) % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| July 4 | 240,587 | 200,270 | +20.13 | 4,018 | 3,104 | +29.42 | 1,273 | 1,334 | – 4.56 | 2,529 | 1,601 | +58.05 |
| July 11 | 272,102 | 194,256 | +40.07 | 3,931 | 2,745 | +43.20 | 1,507 | 1,088 | +38.51 | 2,227 | 1,429 | +55.82 |
| July 18 | 273,492 | 172,258 | +58.76 | 5,486 | 3,503 | +56.63 | 2,781 | 1,643 | +69.30 | 2,529 | 1,702 | +48.63 |
| July 25 | 238,963 | 176,375 | +35.48 | 5,151 | 3,670 | +40.35 | 2,488 | 1,818 | +36.82 | 2,495 | 1,626 | +53.39 |

### Receipts of Eggs (cases) at 4 Markets*

| Geographic Section | June 1942 | June 1941 | % change | Jan. to June, Inc. 1942 | Jan. to June, Inc. 1941 | % change |
|---|---|---|---|---|---|---|
| New England | 69,108 | 33,703 | +105.1 | 487,305 | 296,368 | + 64.3 |
| Middle Atlantic | 286,600 | 201,890 | + 32.1 | 1,669,753 | 1,358,808 | + 22.9 |
| South Atlantic | 36,908 | 19,164 | + 92.6 | 250,666 | 150,368 | + 66.7 |
| East North Central | 370,204 | 395,117 | − 6.3 | 2,074,687 | 2,114,131 | − 1.9 |
| West North Central | 686,590 | 745,188 | − 7.9 | 3,727,469 | 4,542,111 | − 17.9 |
| South Central | 13,510 | 6,676 | +102.4 | 137,369 | 67,106 | +104.7 |
| Mountain | 24,978 | 18,708 | + 33.5 | 121,157 | 135,417 | − 10.5 |
| Pacific | 1,872 | 7,024 | − 73.3 | 52,841 | 50,819 | + 4.0 |
| Miscellaneous | 308 | 263 | + 17.1 | 2,272 | 2,474 | − 8.2 |
| TOTAL | 1,470,078 | 1,427,733 | + 3.0 | 8,523,249 | 8,717,602 | − 2.2 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic Section | June 1942 | June 1941 | % change | Jan. to June, Inc. 1942 | Jan. to June, Inc. 1941 | % change |
|---|---|---|---|---|---|---|
| New England | 848,785 | 1,479,408 | − 42.6 | 2,545,906 | 4,029,893 | − 36.8 |
| Middle Atlantic | 5,983,380 | 7,800,935 | − 23.3 | 24,946,508 | 25,620,489 | − 2.6 |
| South Atlantic | 6,176,571 | 3,993,178 | + 54.7 | 34,363,814 | 18,720,017 | + 83.6 |
| East North Central | 3,024,602 | 2,297,366 | + 31.7 | 14,073,097 | 16,580,811 | − 15.1 |
| West North Central | 11,331,924 | 9,564,477 | + 18.5 | 50,247,587 | 54,528,909 | − 7.9 |
| South Central | 1,960,580 | 1,519,135 | + 29.1 | 8,473,201 | 10,070,747 | − 15.9 |
| Mountain | 318,737 | 48,292 | +560.0 | 3,251,662 | 2,498,504 | + 30.1 |
| Pacific | 1,335,375 | 588,367 | +127.0 | 6,149,959 | 7,297,088 | − 15.7 |
| Miscellaneous | 0 | 0 | – | 0 | 0 | – |
| TOTAL | 30,979,954 | 27,291,158 | + 13.5 | 144,051,734 | 139,346,458 | + 3.4 |

*New York, Chicago, Philadelphia and Boston.

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| July 4 | 59 | 72,006 | 53,443 | −2.14 | +34.73 |
| July 11 | 57 | 67,604 | 54,531 | −5.83 | +23.97 |
| July 18 | 57 | 66,963 | 52,051 | −2.23 | +28.65 |
| July 25 | 57 | 65,978 | 48,728 | −1.66 | +35.40 |

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| July 4 | 25 | 39,727 | −5.4 | +39.9 |
| July 11 | | | | |
| July 18 | 23 | 33,081 | +1.2 | +48.2 |
| July 25 | 25 | 36,750 | −2.7 | +42.0 |

## Egg-Feed Ratios

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Price of Fresh Graded Firsts (Dollars) | | Cost of Ration per 100 lbs. (Dollars) | |
|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | 10-Yr. Avg. 1931-40 | 1942 | 1941 | 1942 | 1941 |
| July 4 | 5.32 | 5.35 | 6.93 | .317 | .266 | 1.690 | 1.427 |
| July 11 | 5.31 | 5.53 | 7.05 | .321 | .262 | 1.709 | 1.451 |
| July 18 | 5.21 | 5.44 | 6.81 | .324 | .262 | 1.693 | 1.429 |
| July 25 | 5.22 | 5.30 | 6.68 | .325 | .266 | 1.695 | 1.410 |

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | Avg. Egg Price Per Doz. (Dollars) | | | Avg. Feed Cost Per 100 lbs. (Dollars) | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 |
| July 2 | 7.1 | 7.2 | 8.7 | .343 | .304 | .210 | 2.45 | 2.20 | 1.82 |
| July 9 | 6.9 | 7.5 | 8.0 | .359 | .302 | .231 | 2.47 | 2.28 | 1.84 |
| July 16 | 6.4 | 7.7 | 8.3 | .376 | .299 | .224 | 2.41 | 2.31 | 1.86 |
| July 23 | 6.4 | 7.8 | 9.1 | .377 | .295 | .208 | 2.41 | 2.29 | 1.89 |
| July 30 | 6.3 | 7.0 | 9.5 | .384 | .322 | .200 | 2.41 | 2.27 | 1.89 |

### Central California Egg-Feed Ratio

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | | | |
|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | 1939 | 1938 | 1937 |
| June | 7.20 | 7.00 | 9.32 | 8.27 | 7.24 | 10.16 |
| January-June | 7.58 | 7.45 | 9.70 | 7.70 | 8.08 | 9.95 |
| Year | | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 |

—Data Compiled by Dorothy B. Erdahl, University of California.

## Egg Prices

### 1942 Egg Prices at New York City

| Kind | July 3 | July 10 | July 17 | July 24 | July 31 | July 31 '41 |
|---|---|---|---|---|---|---|
| Mixed Color Firsts | 32¼ | 33 | 34 | 34 | 34 | 27 |
| Wholesale Sales of Fancy and Extra Fancy White | 36-39½ | 38½-42 | 38½-42 | 39-43 | 39½-45 | 33-35½ |
| White Specials | 35½ | 38 | 38 | 38½ | 39 | 32-32½ |
| Pacific Coast Specials | 40¼-40½ | 42½-43 | 42½-43 | 42½-43 | 44½-45 | 37-37½ |
| Brown Specials | 35 | 37½ | 37½ | 37½ | 39 | 30½ |

## Government Purchases

### Purchases of Eggs and Poultry by the U. S. D. A.

| Week Ending | Shell Eggs | Dried Eggs |
|---|---|---|
| | Cases | 1,000 lbs. |
| July 4 | 74 | 3,389 |
| July 11 | 293 | 3,357 |
| July 18 | 133 | 1,573 |
| July 25 | 12 | 2,918 |
| 1942 Total to July 25 | 439,432 | 172,378 |

The Agricultural Marketing Administration accepted offers on 22,200,080 pounds of dried egg in June. Offers accepted July 1 to July 16 totaled 8,318,775 pounds. Since the first of the year, the Government has accepted offers on 170,071,465 pounds of dried egg.

## Eggs in Storage

### Storage Holdings of Eggs

| Kind | July 1 5-Yr. Avg. 1937-41 | July 1 1941 | June 1 1942 | July 1 1942 | % Change July '41-July '42 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| Shell Eggs (cases) | | | | | |
| SMA and FSCC | | 327 | 37 | 193 | –41.0 |
| Commercial | 6,892 | 6,100 | 6,908 | 7,755 | +27.1 |
| Total | 7,144 | 6,427 | 6,945 | 7,948 | +23.6 |
| Frozen Eggs (lbs.) | | | | | |
| SMA and FSCC | | 14,672 | 6,900 | 4,941 | –66.4 |
| Commercial | 151,817 | 163,922 | 216,931 | 271,894 | +65.8 |
| Total | 154,751 | 178,594 | 223,831 | 276,835 | +55.0 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 4,127 | 4,763 | 5,969 | 7,382 | +54.9 |
| Total (cases) | 11,271 | 11,190 | 12,914 | 15,330 | +36.9 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

Storage holdings of frozen eggs on July 1 totaled 276,835,000 pounds, the largest of record. Storage holdings of shell eggs on July 1 totaled 7,984,000 cases, compared with 6,427,000 cases on July 1, 1941 and the July 1 (1937-41) average of 7,144,000 cases. Reports from egg dryers showed that 3,265,000 cases of shell and 69,858,000 pounds of frozen eggs were earmarked for drying. Small quantities of storage shell and frozen eggs were used for drying in June by several dryers.

## Poultry in Storage

U. S. storage stocks of dressed poultry on July 1 totaled 79 million pounds, compared with 85½ million pounds a year previous and a 5-year average of 73 million pounds. Holdings are close to the seasonal low point and net changes during June amounted to a reduction of 1 million pounds. Of particular interest was an increase of over 3 million pounds in holdings of fowl during June as compared to a million pounds reduction during the same period last year. Other classes of dressed poultry to show increases during the month were ducks and miscellaneous poultry.

Storage holdings of roasters, fryers, and broilers are appreciably lighter than a year ago. U. S. holdings of roasters on July 1 were 5 million pounds compared with 12 million pounds a year earlier. Stocks of frozen turkeys were approximately the same as a year earlier and 5 million pounds more than the 5-year average.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Storage Holdings of Poultry

| Kind | July 1 5-Yr. Avg. 1937-41 | July 1 1941 | June 1 1942 | July 1 1942 | % Change July '41-July '42 |
|---|---|---|---|---|---|
| | | Thousand Pounds | | | |
| Broilers | 5,743 | 4,908 | 3,779 | 3,609 | –26.5 |
| Fryers | 2,935 | 3,597 | 2,677 | 2,119 | –41.1 |
| Roasters | 8,030 | 12,044 | 8,747 | 5,072 | –57.9 |
| Fowls | 13,682 | 13,785 | 14,803 | 18,096 | +31.2 |
| Turkeys | 23,198 | 28,038 | 31,405 | 28,301 | + 0.9 |
| Ducks | 5,730 | 6,646 | 2,550 | 4,572 | –31.3 |
| Miscellaneous | 13,879 | 11,701 | 11,574 | 13,099 | +11.9 |
| Unclassified | | 4,854 | 4,707 | 4,398 | – 9.4 |
| Total | 73,197 | 85,573 | 80,242 | 79,266 | – 7.4 |

## Egg Breaking Operations

Commercial egg breaking plants during June produced 84,517,000 pounds of liquid egg, compared with 49,709,000 pounds during June last year—an increase of 70 per cent. Of the total production, 52,750,000 pounds were frozen, compared with 46,560,000 pounds in June last year, 1,815,000 pounds were used for immediate consumption, compared with 1,891,000 pounds a year earlier. From the remaining 29,952,000 pounds, plus the eggs broken out by strictly egg drying plants, 21,922,009 pounds of dried egg were produced—approximately 7 times the production of June last year.

The production of 20,685,930 pounds of dried whole egg, practically all of which was produced for lease-lend purposes, was about 20 times as large as the production a year earlier. The production of dried albumen was 17 per cent less and the production of dried yolk was 36 per cent less than the production in June last year. The monthly production of dried whole egg is expected to increase during the remaining months of 1942.

—Comment from U. S. D. A. Liquid and Dried Egg Production Report.

### Liquid Egg Production, June 1941-42

| Commodity | | June 1941 | June 1942 | % change in 1942 |
|---|---|---|---|---|
| | | Thousand pounds | | |
| Whole eggs | | 16,802 | 52,062 | +210 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 12,179 | 15,551 | + 28 |
| Egg whites (all descriptions) | | 11,731 | 10,565 | – 10 |
| Egg yolks packed | Without salt, sugar, etc. | 4,673 | 3,803 | – 19 |
| | With sugar | 2,286 | 2,113 | – 8 |
| | With salt | 2,038 | 423 | – 79 |
| | All yolk emulsions, including glycerine | | | |
| Total | | 49,709 | 84,517 | + 70 |

### Dried Egg Production, June 1941-42

| Commodity | June 1941 | June 1942 | % change in 1942 |
|---|---|---|---|
| | Pounds | | |
| Whole | 1,021,145 | 20,685,930 | +1,926 |
| Albumen | 329,286 | 272,970 | − 17 |
| Yolks | 1,502,907 | 963,179 | − 36 |
| Total | 2,853,338 | 21,922,079 | + 668 |
| Firms reporting | | 59 | |

## Hatchery Operations

Output of chicks by commercial hatcheries in June was 7 per cent less than the record high output of June 1941. The decrease from a year earlier in June was the first for any month since April 1941. Production during the first 6 months of 1942 totaled 1,033,341,000 chicks—an increase over early 1941 of 117,341,000 chicks or 13 per cent.

Compared with June 1941, the output of chicks increased 13 per cent in the South Atlantic States, 15 per cent in the Middle Atlantic States, 17 per cent in the New England States, and 38 per cent in the South Central States. Reductions, which more than offset these increases, were 7 per cent in the East North Central States and Pacific Coast States, 19 per cent in the West North Central States, and 30 per cent in the Mountain States.

The number of eggs set was 21 per cent smaller than the number set in June 1941. Increases of 1 per cent in the South Central States, 4 per cent in the Pacific Coast States, 9 per cent in the New England States, 15 per cent in the South Atlantic States, and 17 per cent in the Middle Atlantic States were reported. More than offsetting these increases in eggs set were decreases of 61 per cent in the Mountain States, 36 per cent in the West North Central States, and 27 per cent in the East North Central States.

### Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

| Geographic Divisions | Chicks booked June 1 | % Light breed hatched | | % Heavy breed hatched | | Sexing |
|---|---|---|---|---|---|---|
| | % change from July 1, 1941 | June 1941 | June 1942 | June 1941 | June 1942 | % change from June 1941 |
| New England | +25 | 4 | 3 | 96 | 97 | + 86 |
| Middle Atlantic | +10 | 16 | 20 | 84 | 80 | +255 |
| South Atlantic | +28 | 7 | 5 | 93 | 95 | − 53 |
| E. N. Central | −17 | 28 | 29 | 72 | 71 | − 6 |
| W. N. Central | −21 | 43 | 42 | 57 | 58 | + 2 |
| South Central | −38 | 21 | 20 | 79 | 80 | − 27 |
| Mountain | −30 | 40 | 38 | 60 | 62 | + 44 |
| Pacific | + 5 | 47 | 37 | 53 | 63 | + 23 |
| U. S. | + 6 | 28 | 25 | 72 | 75 | + 12 |

### Chicks Hatched by Commercial Hatcheries

| Geographic Division | June 1939 | June 1940 | June 1941 | June 1942 | % chg. from June 1941 | Jan.-June Inc. 1941 | Jan.-June Inc. 1942 | % chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 2,282 | 2,058 | 3,740 | 4,374 | +17 | 45,809 | 51,500 | +12 |
| Middle Atlantic | 4,423 | 4,919 | 6,760 | 7,755 | +15 | 72,141 | 81,727 | +13 |
| South Atlantic | 6,370 | 6,860 | 10,244 | 11,570 | +13 | 82,017 | 90,408 | +10 |
| E. N. Central | 26,447 | 25,701 | 42,267 | 39,481 | − 7 | 261,156 | 280,915 | + 8 |
| W. N. Central | 25,417 | 32,321 | 56,566 | 46,042 | −19 | 295,977 | 345,456 | +17 |
| South Central | 2,157 | 2,363 | 5,240 | 7,246 | +38 | 95,115 | 116,498 | +22 |
| Mountain | 1,736 | 1,391 | 2,213 | 1,539 | −30 | 16,830 | 16,173 | − 4 |
| Pacific | 2,435 | 2,205 | 4,037 | 3,738 | − 7 | 46,955 | 50,664 | + 8 |
| U. S. | 71,267 | 77,818 | 131,067 | 121,745 | − 7 | 916,000 | 1,033,341 | +13 |

The increases in eggs set during June occurred in the principal broiler producing areas. Prices of broilers have picked up considerably during the past 6 weeks and again encourage the production of chicks for broilers. If present prices continue, there will probably be a good demand for chicks. On July 1, the number of chicks booked was 6 per cent larger than last year.

The demand for heavy breed chicks in June was slightly better than last year. Hatcheries reported that 75 per cent of chicks hatched were of heavy breeds and 25 per cent were of light breeds, compared with 72 per cent heavy breeds and 28 per cent light breeds in June last year. The number of chicks sexed was 30 per cent larger than in June 1941.

Reports from 93 hatcheries on turkey operations showed 43 per cent less turkey eggs set than in June 1941 but 6 per cent more poults hatched. Orders for poults on July 1 showed a decrease of 68 per cent from the same date last year.

—**Comment from U. S. D. A. Hatchery Production Report.**

## *How The Young Stock Grows*

It is a common complaint on many commercial poultry farms that late hatched birds do not make the growth that the early ones do.

This is quite true, because late-hatched birds do not make the rapid growth early in their growing season as early hatched birds do. A comparison of the two hatches on the same farm make the operator feel that the late-hatched birds are not quite as good as the early ones.

Checking the weights of a few of the growing birds will readily tell one about their growth. White Leghorns at eight weeks of age should weigh about a pound, while American breeds should average about 1½ pounds. At 12 weeks the Leghorns have jumped up to 1.7 pounds while the American breeds average 2.1 pounds. At 16 weeks the Leghorns jump up to 2½ and the American breeds to 3 pounds. At 20 weeks the Leghorns weigh just about 3 pounds with the Americans at 3½. At 24 weeks the Leghorns are 3½ pounds and the American breeds 4.

These weights have been developed from a large mass of data, and if your birds exceed them you are doing a good job of raising poultry.

—New Jersey Poultry News Notes, July, 1942.

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# Looking "Hexy" in the Eye

By W. R. HINSHAW and E. McNEIL
University of California

*Condensed from Turkey World*

TURKEY growers are faced this year, as never before, with the need for raising the maximum percentage of poults purchased, both because of increased cost of production and the need to produce the maximum amount of food for defense.

The prevention of Hexamitiasis, a limiting factor in turkey production in many areas, may be considered a defense measure. This disease formerly was known as intestinal trichomoniasis, and more recently as infectious catarrhal enteritis. Until it was found in 1938 that the disease was due to a Hexamita, trichomonads were thought to be the cause. The protozoan parasite now has been named Hexamita meleagridis.

It is a disease of poults under 12 weeks of age, with natural resistance increasing with age. Visible symptoms are seldom seen after the poults reach 8 weeks of age, unless some contributing factor lowers their resistance. Other diseases, change of feed, or a sudden change of environment are examples. The sick poult becomes listless, its body temperature is lowered, it seeks additional heat, the feathers appear unkempt, and the droppings are watery and foamy. In the early stages, it is nervous, eats often, and continually chirps. Rapid loss of weight is characteristic.

Autopsy shows it to be in poor condition, the skin is dry and the flesh congested. The intestinal contents are watery and foamy and the upper and mid-intestinal walls are thin. Mortality may vary from less than 10 per cent to as high as 75 per cent of the flock. A high percentage of stunted survivors results from the disease.

Accurate diagnosis is based on findings, with the aid of a microscope, large numbers of the parasite in the upper two-thirds of the intestine. For an accurate diagnosis, freshly killed specimens must be examined, since Hexamita dies very soon after the host dies.

## Method of Transmission

In approximately one-third of adult survivors, Hexamita continues to live in the intestines, and are shed in droppings throughout the life of the turkey. These carriers constitute the most important means of transmission. The parasites are not transmitted through eggs laid by carriers.

Transportation of the parasite to the susceptible poult is accomplished most easily by the attendant. Dogs, cats, rats, feed sacks, and feeding and cleaning equipment are potential mechanical carriers. Flies have not been incriminated as natural or mechanical carriers, nor has the English sparrow. Hexamita meleagridis has been found in quail and chukar partridges.

There is an opinion that Hexamita is present on all turkey ranches. This is not true. Nor is it true that turkeys cannot be kept free from the parasites. It has to be introduced from some carrier. In our field work, we have often traced the source of the disease on a ranch not previously infected to the purchase of breeder males from infected sources.

It is seldom that the first hatch of poults shows symptoms of this disease even though carriers are on the premises. Slight losses are sometimes experienced in a second hatch, and, as the season advances, each successive hatch is likely to show earlier symptoms and suffer greater losses. It works like compound interest. The first group of poults pick up a few parasites from the carriers, which shed relatively small numbers. Hexamita multiplies rapidly in poults, but under ideal conditions enough dosage is not build up to cause damage before they become naturally resistant. Each successive group has additional chances to pick quantities, until, finally, acute losses are experienced.

## Control

If you are unfortunate enough to have an outbreak, remember the dosage factor. Each sick poult eliminates thousands of the parasites, which may be eaten by susceptible poults. Anything that can be done to cut down this dosage will be an aid in preventing losses. Furnishing increased heat for the brooder, frequent dry cleaning, and the use of wire sun porches are suggestions. Separating the visibly sick birds from the healthier ones will help reduce the number of parasites available.

Keep the poults comfortably warm at all costs. Nursing and good management are important in preventing losses. Discriminate use of milk and

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Turkey World, May, 1942)

milk products as convalescent foods, but not as remedies, may help build resistence, but precaution should be taken to prevent over-feeding of milk to the point where it becomes a laxative. The use of milk or milk products as often recommended for coccidiosis will prove disastrous.

### No Effective Drug

A frequently asked question is whether we have found a treatment. We have conducted approximately 75 experiments on drugs under controlled conditions and have not yet found a specific treatment. This parasite, similar to ones found in both man and animals, is known to be resistant to treatment. It is not reasonable, therefore, to hope that it will be easy to find a drug which will kill the parasite without killing the poult.

Our first work on treatment consisted of disproving certain fallacies by making careful field observations and laboratory experiments on products in common use on ranches. These included many patent remedies, as well as home-made concoctions, including whiskey and some of the common dyes (which at least looked impressive). On one ranch, we counted 12 remedies, but also counted hundreds of poults dying in spite of them. Many poults were autopsied on ranches to see the effect of remedies used. No remedy was found in these field surveys which prevented or cured the disease. Growers, who at times thought they had curatives, usually gave such remedies after losses were already subsiding.

Our next work consisted in testing certain products which, because of known therapeutic properties, we had reason to believe might be of value. The products tested includes phenothiazine, sodium bicarbonate (common baking soda), mercuric chloride, and sulfaguanidine. None was found to have any curative value and some were actually harmful.

### Prevention

Prevention is possible, and we have ample field data to prove this. Obviously, from what has been said on intestinal shedders and dosage, it is necessary to use some method of preventing transportation of parasites from carriers to susceptible poults in large enough numbers to start an outbreak. Growers who sell all of their turkeys for market each year and buy replacements as eggs or day-old poults should have no difficulty in preventing this disease. In such cases, quail, chukars, ducks, and chickens must not be forgotten as possible sources.

For the grower who keeps breeders, a plan which has worked is to save enough eggs for replacements and sell all the breeders before any eggs hatch. The premises need not be vacated longer than a few days under such conditions, but every bird must be disposed of, and the premises and equipment cleaned and disinfected before the poults hatch. This plan eliminates the most important source of infection—the adult carrier—before any poults are available for the build-up of infection. It may fail if even a few poults are hatched before selling the adults, or if a few straggling adults are kept.

### Segregation Works

A third plan which has worked, but which requires constant vigilance on the part of the owner, is complete segregation of the breeding and brooding units. This plan involves hard work and lots of it. If it is to be successful, every effort must be made to prevent carrying of the parasite from the carrier to the poults. The most important point is to remember constantly that infection is always present, if carriers are on the ranch, and only waiting transportation to a suitable environment. The "build-up" factor also must be remembered. The fact that no symptoms have appeared in the first or second brood is no guarantee that these poults may not be important means of transmission to a third or fourth hatch. Every sanitary precaution known must be observed to make this plan work.

We could cite many field examples of successful prevention of this disease. One of the best examples is that of one large turkey growing area where a definite prevention campaign has been in progress for three years. The first year, the disease was diagnosed on 35 ranches. Last year, from the same area, only 6 cases of the disease were diagnosed.

### Prevention is Possible

The first ranch on which this disease was diagnosed in 1938 has never experienced losses since the original outbreak. This owner now maintains two units — one for his adult stock and one for rearing his poults. The operation of each is independent of the other. Adult birds are never allowed on the rearing ranch, nor is equipment ever exchanged. Sanitation and good management are extremely important preventives.

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"V" Egg Stamp — A patriotic Ohio dealer made his customers conscious of the importance of increased egg production and helped boost the sale of his feed by offering a free rubber stamp imprinted with the letter "V". He told customers who purchased feed to stamp every 12th egg they packed with a "V" and to also indicate each dozen with a "V" on their record charts. The idea really took hold and was considered quite a novelty as well as a timely good will, patriotic gesture on the part of the dealer.
—Poultry Supply Dealer, August, 1942.

# RESULTS OF LAYING TESTS

Crooks Farm Rhode Island Reds at the Pennsylvania test stepped into the lead over all other pens in the country on July 1. The Crooks entry replaced Holser's Valley Farm's Leghorns, which had moved into top position a month ago.

Competition for top honors is so keen that, barring accidents, the lead may change many times between now and the last week in September, when the contest year closes.

The Crooks pen not only led the Pennsylvania test, but led the entire country in production during June, the 13 birds laying 336 eggs worth 367.75 points.

Top hen to date is a Harco Orchards Rhode Island Red at the Maine test, having laid 263 eggs worth 289.05 points in 273 days. Closely following is a J. A. Hanson Leghorn at Storrs, with 265 eggs worth 278.90 points.

Among White Leghorn entries, five breeders have more than one pen in the top 20: Irving Kauder, J. A. Hanson, Babcock's Hatchery, Foreman Poultry Farm, and W. A. Seidel.

Joachim Breeding Farm and George A. Pearce are fighting it out for New Hampshire honors. Dryden Poultry Breeding Farm is virtually assured of having the high Barred Rock pen.

Riley Poultry Farm leads among White Rocks, but Bagby Poultry Farm and Missouri Valley Poultry Farm have hens within striking distance of the top.

## Twenty High Pens, All Breeds, to July 1—(273 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 2964 | 3136.00 | Pennsylvania |
| Holser's Valley Farm | White Leghorn | 2932 | 3130.80 | Storrs |
| Hillview Poultry Farm | Rhode Island Red | 3012 | 3116.10 | California |
| W. H. Wilson | Rhode Island Red | 2895 | 3090.20 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 2812 | 3057.20 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 2895 | 3048.90 | Storrs |
| Babcock's Hatchery | White Leghorn | 3011 | 3046.35 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 2825 | 3041.15 | Missouri |
| J. A. Hanson | White Leghorn | 2901 | 3040.00 | Georgia |
| Harco Orchards | Rhode Island Red | 2807 | 3037.95 | Rhode Island |
| J. A. Hanson | White Leghorn | 2854 | 3026.30 | Western New York |
| Thomas H. Mettler | Rhode Island Red | 3070 | 3023.90 | Storrs |
| Ford's Riverbank Farm | Rhode Isalnd Red | 2875 | 2995.95 | Storrs |
| Joachim Breeding Farm | New Hampshire | 2814 | 2980.35 | Storrs |
| Crooks Farm | Rhode Island Red | 2811 | 2972.20 | Storrs |
| J. A. Hanson | White Leghorn | 2788 | 2961.60 | Pennsylvania |
| Peckham Farm | Rhode Island Red | 2788 | 2958.30 | Rhode Island |
| G. B. Treadwell | Rhode Island Red | 2832 | 2955.50 | Maine |
| To-Lani Farm | Rhode Island Red | 2815 | 2936.55 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 2719 | 2934.45 | Georgia |

## High Pen in Each Test to July 1—(273 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 2964 | 3136.00 | Pennsylvania |
| Holser's Valley Farm | White Leghorn | 2932 | 3130.80 | Storrs |
| Hillview Poultry Farm | Rhode Island Red | 3012 | 3116.10 | California |
| W. H. Wilson | Rhode Island Red | 2895 | 3090.20 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 2812 | 3057.20 | Texas |
| Foreman Poultry Farm | White Leghorn | 2825 | 3041.15 | Missouri |
| Harco Orchards | Rhode Island Red | 2807 | 3037.95 | Rhode Island |
| J. A. Hanson | White Leghorn | 2854 | 3026.30 | Western New York |
| G. B. Treadwell | Rhode Island Red | 2832 | 2955.50 | Maine |
| George A. Pearce | New Hampshire | 2779 | 2928.90 | Hunterdon, N. J. |
| E. B. Parmenter | Rhode Island Red | 2748 | 2851.50 | Passaic, N. J. |
| Gold Spot Hatchery | White Leghorn | 2696 | 2841.80 | Arizona |
| Foreman Poultry Farm | White Leghorn | 2576 | 2727.35 | Central New York |
| Creighton Brothers | White Leghorn | 2677 | 2707.95 | Florida |
| J. J. Warren | Rhode Island Red | 2481 | 2582.90 | Michigan |
| Foreman Poultry Farm | White Leghorn | 2656 | 2572.05 | Oklahoma |
| Crooks Farm | Rhode Island Red | 2440 | 2511.80 | Long Island |

## High Pen in Each Test for June

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 336 | 367.75 | Pennsylvania |
| Kauder's Pedigreed Leghorns | White Leghorn | 329 | 359.60 | Western New York |
| Nelson Leghorn Breeding Farm | White Leghorn | 332 | 354.25 | California |
| Dublin Poultry Farm | White Leghorn | 322 | 345.20 | Missouri |
| Bodine's Pedigreed Leghorns | White Leghorn | 323 | 344.20 | Central New York |
| Kauder's Pedigreed Leghorns | White Leghorn | 308 | 336.95 | Storrs |
| To-Lani Farm | Rhode Island Red | 313 | 329.40 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 297 | 325.90 | Texas |
| Sunrise Poultry Farm | White Leghorn | 311 | 325.15 | Michigan |
| G. B. Treadwell | Rhode Island Red | 297 | 317.00 | Maine |
| Holser's Valley Farm | White Leghorn | 287 | 312.45 | Rhode Island |
| Rapp's Poultry Farm | White Leghorn | 285 | 309.45 | Hunterdon, N. J. |
| Booth Farms and Hatchery | White Leghorn | 284 | 306.85 | Florida |
| Booth Farms and Hatchery | White Leghorn | 294 | 306.05 | Arizona |
| Robert Chapman | Rhode Island Red | 302 | 303.80 | Oklahoma |
| Foreman Poultry Farm | White Leghorn | 279 | 290.15 | Long Island |

## High Pen in Each Breed to July 1—(273 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 2964 | 3136.00 | Pennsylvania |
| Holser's Valley Farm | White Leghorn | 2932 | 3130.80 | Storrs |
| Joachim Breeding Farm | New Hampshire | 2814 | 2980.35 | Storrs |
| Dryden Poultry Farm | Barred Rock | 2858 | 2881.00 | Pennsylvania |
| Riley Poultry Farm | White Rock | 2582 | 2611.90 | Storrs |
| Ernest Pedigo | Australorp | 2205 | 2321.10 | Arizona |
| Harvey E. Taylor | White Wyandotte | 2124 | 2235.40 | Missouri |
| T. D. Brown | White Minorca | 2085 | 2195.05 | Texas |
| Imperial Breeding Farm | White Giant | 2109 | 2169.55 | Maine |
| Harry L. Phillips | Columbian Rock | 1982 | 2133.05 | Missouri |
| Horne's Hatchery | Black Minorca | 1956 | 2130.30 | Texas |
| Raymond S. Thomas | Ancona | 2056 | 2118.65 | Pennsylvania |
| Imperial Breed. Farm | New Hampshire White | 1798 | 1931.20 | Missouri |
| Dryden Poultry Breeding Farm | Cross | 1817 | 1882.70 | California |
| Miami Chick Hatchery | Buff Rock | 1783 | 1802.20 | Michigan |
| Iowa Master Breeders | Buff Orpington | 1822 | 1731.50 | Texas |
| Henry F. Waitt | Buff Minorca | 1600 | 1586.40 | Maine |
| Charles A. Richardson | Buff Leghorn | 1689 | 1580.45 | Hunterdon, N. J. |
| Wellington Wells | Silver Laced Wyandotte | 1565 | 1447.05 | Maine |
| F. G. Romance | Partridge Plymouth Rock | 1281 | 1248.65 | Florida |
| Philip Maddux | Black Leghorn | 1291 | 1205.20 | Long Island |

## High Hen in Each Breed to July 1—(273 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 263 | 289.05 | Maine |
| J. A. Hanson | White Leghorn | 265 | 278.90 | Storrs |
| Dryden Poultry Farm | Barred Rock | 249 | 271.80 | Storrs |
| George A. Pearce | New Hampshire | 263 | 270.50 | Hunterdon, N. J. |
| Raymond S. Thomas | Ancona | 233 | 255.15 | Pennsylvania |
| Paul Hansen | Australorp | 227 | 244.80 | California |
| Bagby Poultry Farm | White Rock | 224 | 238.60 | Texas |
| G. W. Schottman | White Wyandotte | 216 | 236.40 | Missouri |
| Harry L. Phillips | Columbian Rock | 210 | 224.30 | Missouri |
| Dryden Poultry Breeding Farm | Cross | 214 | 221.95 | California |
| Imperial Breeding Farm | White Giant | 212 | 219.75 | Maine |
| Imperial Breed. Farm | New Hampshire White | 202 | 219.40 | Missouri |
| Horne's Hatchery | Black Minorca | 190 | 208.40 | Texas |
| T. D. Brown | White Minorca | 191 | 204.30 | Texas |
| Iowa Master Breeders | Buff Orpington | 189 | 193.40 | Texas |
| Miami Chick Hatchery | Buff Rock | 178 | 190.30 | Michigan |
| Henry F. Waitt | Buff Minorca | 176 | 175.00 | Maine |
| Charles A. Richardson | Buff Leghorn | 182 | 174.25 | Hunterdon, N. J. |
| Donald Chandler | Silver Laced Wyandotte | 170 | 169.70 | Maine |
| Philip Maddux | Black Leghorn | 161 | 150.95 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 125 | 127.60 | Florida |

## High Hen in Each Test to July 1—(273 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 263 | 289.05 | Maine |
| J. A. Hanson | White Leghorn | 265 | 278.90 | Storrs |
| Harco Orchards | Rhode Island Red | 252 | 276.20 | Rhode Island |
| Rinker Poultry Farm | White Leghorn | 254 | 276.10 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 259 | 274.60 | Missouri |
| Charles D. Deisher | White Leghorn | 260 | 273.55 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 258 | 273.55 | Georgia |
| Alampi Poultry Farm | Rhode Island Red | 248 | 272.35 | Passaic, N. J. |
| Bagby Poultry Farm | Rhode Island Red | 254 | 271.85 | Arizona |
| George A. Pearce | New Hampshire | 263 | 270.50 | Hunterdon, N. J. |
| J. A. Hanson | White Leghorn | 256 | 270.35 | Western New York |
| E. B. Parmenter | Rhode Island Red | 248 | 264.80 | California |
| Foreman Poultry Farm | White Leghorn | 241 | 263.95 | Central New York |
| W. A. Seidel | White Leghorn | 254 | 263.50 | Florida |
| Foreman Poultry Farm | White Leghorn | 247 | 251.85 | Oklahoma |
| Aseltine Poultry Farm | Rhode Island Red | 245 | 251.20 | Michigan |
| Foreman Poultry Farm | White Leghorn | 235 | 248.50 | Long Island |

## Twenty High White Leghorn Pens to July 1—(273 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Holser's Valley Farm | 2932 | 3130.80 | Storrs |
| Kauder's Pedigreed Leghorn | 2812 | 3057.20 | Texas |
| Kauder's Pedigreed Leghorn | 2859 | 3048.90 | Storrs |
| Babcock's Hatchery | 3011 | 3046.35 | Pennsylvania |
| Foreman Poultry Farm | 2825 | 3041.15 | Missouri |
| J. A. Hanson | 2901 | 3040.00 | Georgia |
| J. A. Hanson | 2854 | 3026.30 | Western New York |
| J. A. Hanson | 2788 | 2961.60 | Pennsylvania |
| Kauder's Pedigreed Leghorn | 2719 | 2934.45 | Georgia |
| J. A. Hanson | 2801 | 2933.25 | Storrs |
| Kauder's Pedigreed Leghorn | 2685 | 2899.30 | Pennsylvania |
| W. A. Seidel | 2734 | 2893.85 | Texas |
| George M. Anthony | 2788 | 2882.65 | Pennsylvania |
| Burr's Poultry Farm | 2777 | 2881.65 | Pennsylvania |
| Rapp's Poultry Farm | 2701 | 2872.70 | Hunterdon, N. J. |
| W. A. Seidel | 2729 | 2863.95 | Texas |
| Gold Spot Hatchery | 2696 | 2841.80 | Arizona |
| Kauder's Pedigreed Leghorn | 2663 | 2832.05 | Storrs |
| Foreman Poultry Farm | 2713 | 2829.80 | Storrs |
| Babcock's Hatchery | 2806 | 2822.25 | Georgia |

## Twenty High Rhode Island Red Pens to July 1—(273 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Crooks Farm | 2964 | 3136.00 | Pennsylvania |
| Hillview Poultry Farm | 3012 | 3116.10 | California |
| W. H. Wilson | 2895 | 3090.20 | Georgia |
| Harco Orchards | 2807 | 3037.95 | Rhode Island |
| Thomas H. Mettler | 3070 | 3023.90 | Storrs |
| Ford's Riverbank Farm | 2875 | 2995.95 | Storrs |
| Crooks Farm | 2811 | 2972.20 | Storrs |
| Peckham Farm | 2788 | 2958.30 | Rhode Island |
| G. B. Treadwell | 2832 | 2955.50 | Maine |
| To-Lani Farm | 2815 | 2936.55 | Georgia |
| C. C. Hersey | 2808 | 2913.90 | Storrs |
| W. H. Wilson | 2784 | 2900.35 | Georgia |
| J. J. Warren | 2691 | 2888.30 | Rhode Island |
| J. J. Warren | 2674 | 2863.30 | Maine |
| E. B. Parmenter | 2748 | 2851.50 | Passaic, N. J. |
| G. B. Treadwell | 2770 | 2851.25 | Storrs |
| Robert C. Cobb | 2725 | 2837.80 | Storrs |
| Crooks Farm | 2703 | 2837.70 | Storrs |
| E. B. Parmenter | 2697 | 2831.70 | Pennsylvania |
| E. B. Parmenter | 2649 | 2823.00 | California |

## Twenty High New Hampshire Pens to July 1—(273 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Joachim Breeding Farm | 2814 | 2980.35 | Storrs |
| George A. Pearce | 2779 | 2928.90 | Hunterdon, N. J. |
| George A. Pearce | 2633 | 2759.85 | Storrs |
| Joachim Breeding Farm | 2579 | 2725.95 | Hunterdon, N. J. |
| James H. Horne | 2475 | 2619.55 | Storrs |
| W. G. Ashley | 2441 | 2619.45 | Arizona |
| Hubbard Farms | 2500 | 2607.20 | Western New York |
| Joachim Breeding Farm | 2536 | 2602.65 | Pennsylvania |
| Del Rio Farm | 2428 | 2591.80 | Arizona |
| Ebenwood Farm | 2412 | 2583.20 | Rhode Island |
| Crescent Farms | 2436 | 2581.95 | Florida |
| Hubbard Farms | 2507 | 2574.10 | Georgia |
| Howard Breeding Farm | 2414 | 2571.10 | California |
| Hubbard Farms | 2503 | 2568.65 | Pennsylvania |
| Ebenwood Farm | 2396 | 2534.25 | Storrs |
| Fairport Hatchery | 2449 | 2521.00 | Western New York |
| Forest Hill Poultry Farm | 2416 | 2513.25 | Storrs |
| Hubbard Farms | 2403 | 2506.25 | Storrs |
| H. S. and M. E. Twichell | 2324 | 2500.15 | Western New York |
| Clarence E. Colby | 2384 | 2492.90 | Storrs |

## Twenty High Barred Plymouth Rock Pens to July 1—(273 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Breeding Farm | 2858 | 2881.00 | Pennsylvania |
| Dryden Poultry Breeding Farm | 2768 | 2850.30 | Storrs |
| Dryden Poultry Breeding Farm | 2670 | 2764.75 | Storrs |
| Harco Orchards | 2760 | 2684.65 | Maine |
| Dryden Poultry Breeding Farm | 2607 | 2658.55 | California |
| Norman Amidon | 2580 | 2645.90 | Maine |
| J. W. Schaible | 2622 | 2610.80 | Hunterdon, N. J. |
| Harco Orchards | 2433 | 2559.15 | Storrs |
| Foster Jameson | 2416 | 2554.80 | Maine |
| A. J. Urquhart | 2517 | 2554.65 | Maine |
| Penn's Poultry Breeding Farm | 2487 | 2531.15 | Texas |
| Peachblow Farm | 2451 | 2510.90 | Maine |
| Harco Orchards | 2383 | 2510.65 | Rhode Island |
| Hockhockson Farm | 2375 | 2496.45 | Hunterdon, N. J. |
| Fisher Orchards | 2319 | 2473.80 | Pennsylvania |
| A. J. Urquhart | 2391 | 2445.55 | Passaic, N. J. |
| Ox-Pond Farm | 2340 | 2434.55 | Storrs |
| Park's Barred Rock Farm | 2337 | 2433.55 | Pennsylvania |
| A. J. Urquhart | 2266 | 2426.95 | Rhode Island |
| Broad Acres Farm | 2247 | 2424.50 | Storrs |

## Twenty High White Plymouth Rock Pens to July 1—(273 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Riley Poultry Farm | 2582 | 2611.90 | Storrs |
| Bagby Poultry Farm | 2415 | 2567.55 | Texas |
| Missouri Valley Poultry Farm | 2363 | 2509.65 | Texas |
| Ralph De Young | 2397 | 2482.80 | Maine |
| Missouri Valley Hatchery | 2413 | 2466.40 | Georgia |
| Four Winds Farm | 2351 | 2439.50 | Michigan |
| Riley Poultry Farm | 2374 | 2397.70 | Georgia |
| Carter-Dunham | 2135 | 2287.25 | Texas |
| Albert C. Lawton | 2154 | 2251.30 | Storrs |
| Carter-Dunham | 2107 | 2248.95 | Georgia |
| Inspiration Acres | 2309 | 2231.35 | Florida |
| Holtzapple Poultry Farm | 2132 | 2210.40 | Pennsylvania |
| Booth Farms | 2068 | 2201.80 | Missouri |
| Superior Hatchery | 2124 | 2191.70 | Texas |
| St. Paul Hatchery | 2109 | 2180.35 | Florida |
| Imperial Breeding Farm | 2197 | 2178.80 | Storrs |
| Knepley Hatchery | 2144 | 2178.45 | Oklahoma |
| Kerr Chickeries | 2088 | 2151.25 | Hunterdon, N. J. |
| St. Paul Hatchery | 2049 | 2135.50 | Michigan |
| Albert C. Lawton | 2074 | 2130.20 | Rhode Island |

## Average Production and Mortality, Each Test, to July 1—(273 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for June | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Arizona | 390 | 176.80 | 185.59 | 24.98 | .51 | 12.31 |
| Storrs | 1,352 | 175.32 | 181.46 | 24.70 | 1.70 | 11.69 |
| Pennsylvania | 1,105 | 174.72 | 179.49 | 24.54 | 1.36 | 11.68 |
| Hunterdon, N. J. | 624 | 172.28 | 177.70 | 24.62 | 1.44 | 10.90 |
| Rhode Island | 611 | 167.95 | 177.45 | 25.12 | 2.29 | 14.24 |
| Georgia | 1,326 | 170.49 | 174.56 | 24.46 | 1.28 | 13.28 |
| California | 598 | 169.03 | 173.92 | 24.56 | 2.17 | 12.71 |
| Texas | 1,456 | 162.82 | 169.26 | 24.78 | 3.65 | 14.02 |
| Florida | 1,118 | 163.20 | 168.26 | 24.60 | 1.25 | 11.27 |
| Western New York | 975 | 159.27 | 166.71 | 24.92 |  | 8.72 |
| Passaic, New Jersey | 871 | 160.00 | 164.85 | 24.60 | 2.18 | 14.70 |
| Maine | 988 | 158.78 | 161.15 | 24.28 | 2.72 | 11.63 |
| Missouri | 780 | 144.73 | 154.69 | 25.36 | 1.41 | 13.59 |
| Central New York | 1,066 | 147.66 | 153.54 | 24.78 | 2.25 | 11.64 |
| Oklahoma | 650 | 147.31 | 148.37 | 24.14 | 2.00 | 13.08 |
| Long Island | 1,092 | 142.09 | 142.99 | 24.08 | 2.38 | 14.02 |
| Michigan | 871 | 140.42 | 141.67 | 24.16 | 2.18 | 18.72 |
| All Tests | 15,873 | 160.75 | 165.98 | 24.62 | 1.81 | 12.83 |

# *Extra Pail for Dirties and Cracks*

A. J. Moore and son of Elmira, N. Y., have a novel method of handling the eggs on their poultry farm that aids in the production of clean eggs. They have a small 2-quart pail wired to the outside edge of their egg basket. As the eggs are gathered, all the dirty or soiled ones and the cracked or odd shaped eggs are placed in the 2-quart pail. Thus the eggs gathered in the wire basket are ready for the grader as soon as they go down cellar, while those in the pail can be cleaned, the cracked eggs sorted out, and the odd shaped ones sold to local customers.

—Everybodys Poultry Magazine, July-August, 1942.

NATIONAL

POULTRY DIGEST

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Vol. 4, No. 45 September 15, 1942

# Poultry's Part in Victory

By ROY F. HENDRICKSON

Administrator, Agricultural Marketing Administration

*Condensed from a Talk*

SO far as the war effort is concerned, there are three broad demands for food. Our own armed forces come first, and we are letting no obstacle stand in the way of getting them all the food they need – the best food in the world. At the same time, we are not forgetting the requirements of our "people's army"—the thousands of civilians who are turning out the planes, tanks, ships, guns, and other mplements of war. Our allies need ood, too, and under the Lend-Lease Act we are sending them ever-increasing quantities, both for their ghters and their civilians. Our end-lease grocery list adds up to about $5,000,000 a day.

No other branch of Agriculture has done more than the poultry industry in the way of producing food. Since the Food-For-Freedom Program went into effect, egg production records have been broken consistently month after month. It seems almost unbelievable, but farm production during this period from January to June added up to the amazing total of 29,189,000,000 eggs —an all-time record for the period. Working in Washington, I have become used to big figures, but I'll admit that the size of our egg output thus far rather startled me.

The prime mover behind this

From a talk presented at the International Baby Chick Association Convention
Grand Rapids, Michigan, July 22, 1942

enormous total might be a subject for debate. The old question of what came first, the hen or the egg, has never been satisfactorily settled. But I think this year the baby chicks came first, then the hens, and, finally, the eggs. The hatchery industry has done all that was expected of it, and more too, in the drive for increased food supplies.

Splendid cooperation has been shown throughout in this drive for increased egg production. In April 1941, Secretary Wickard asked for a step-up in egg production and set a goal of 10 per cent more hens and pullets in flocks on January 1, 1942. At the beginning of this year there were 12 per cent more layers on farms, so the egg production goal for 1942 was stepped up to 13 per cent more than in 1941. For the first half of this year egg production has exceeded last year by 16 per cent, so the goal has been exceeded.

A remarkable thing about it is that every section of the country is helping out, deficit egg-producing sections along with commercial areas.

### 1943 Goals

It is still too early for me to tell you definitely about the goals for 1943. Work is progressing rapidly toward projecting these goals and it is expected that announcements will be made early in the fall. It is my personal feeling that the 1943 egg goal will probably be somewhat larger than that for this year. It seems just good sense and mighty good freedom insurance to produce a little too much than a lot too little.

### The Egg Drying Industry

What does egg drying mean to our allies? Let's consider that point for a minute. Each Briton receives four fresh eggs a month in summer; one a month in winter. The ration in Russia is probably smaller, with Hitler's hordes occupying the richest farm lands of that country. But neither Britain nor Russia are asking us for fresh eggs. They are asking us for what they can get the most of—and that happens to be dried egg powder.

Events this summer are going to be the most critical in our history. We are giving the British some military assistance and are also helping the Russians as far as possible, but the big second front hasn't materialized and we have no way of knowing when it will. That is a matter for our military strategists to determine. But we have already opened a second front with our food and we intend to keep it open. The more food we send to our embattled allies, the longer they will be able to maintain their strength and courage. Food will keep our allies in the game until we can open a second front in a military way.

This is a fight in which every member of the poultry industry can join. The hatcheryman who maintains or increases his production with existing equipment is contributing directly to the defeat of the Axis. So is the poultry farmer who builds up his laying flocks and increases egg output. So is the egg drying plant that works out more effective techniques for processing egg powder. It is a comparative job from start to finish. The poultry industry has already demonstrated what it can do and I know it will continue to meet the goals set for it.

### Broilers and Fryers—A By-Product

There is one by-product of the drive for increased egg production this year that ought to be mentioned. I am referring, of course, to broilers and fryers, which appear to be something of a factor in the poultry situation this summer.

Farmers, as you know, in anticipation of the egg production job ahead and the necessity of building up their flocks, have raised chicks in record proportions this spring. But about half of the chicks raised were cockerels. And, as the saying goes, there's not an egg in a carload of cockerels. They have been growing up to the eating stage these past few weeks.

In one sense, it's a patriotic duty to eat chicken this summer. Our allies are asking for more and more of the food that can be shipped. At the same time, we have abundant supplies of perishables, the food that can't be shipped. If we eat chicken, more of the other meat—trimmed, cured, dehydrated, and frozen pork and beef—can take to the high seas.

However, we are not encouraging any expansion of the commercial broiler industry. Commercial broiler production has already expanded to the danger point and we do not expect to place any floor under broiler prices. As I pointed out earlier, all of the emphasis is being placed on egg production and marketing, and the emphasis will be there for some time to come.

### Future Difficult to Forecast

Of course, none of us can be too sure about the future, especially in times like these. Pearl Harbor came as a surprise to most of us, so did the fall of Tobruk, and so did the appalling toll of ship losses the submarines have taken in recent months. We are, undoubtedly, in for some other unpleasant surprises. In other words, we can plan; but we can't forecast with any accuracy very far ahead.

But I think we can be certain about one thing. During a war it is far better to have too much food than too little. That means, of course, that the poultry industry should not slacken its efforts in the slightest. The foods that can be stored should be stored, for I have a feeling that we are going to need them.

A few other predictions can be made, subject, of course, to the changing fortunes of war.

Indications point to plenty of layers in the last half of 1942 and in 1943 to meet increasing demands for eggs. Because of the heavy total hatch this year, farm holdings of young chickens on July 1 were the largest on record—8 per cent above a year ago and 12 per cent above the 1931 to 1940 average.

### Feed Situation Satisfactory

The feed situation is not as favorable as it was this time last year, but it isn't too bad. According to the July Crop Report, the farm supply of feed grains is about the same as last year, but the number of livestock units on farms next winter will probably be about 12 per cent larger. It seems likely that farm stocks of feed grains will be substantially reduced by July 1, 1943, the extent of the reduction depending in part on hog production and on the extent to which wheat is utilized for feed.

With supplies per animal smaller, the demand for grain will be stronger and feed grain prices are likely to advance. Supplies of oilseed meals per animal, in view of the large increase in vegetable-oil crops, will be larger, and prices may be down a little. This all means that the egg-feed price ratio probably will decline a little, but is likely to continue favorable for egg production.

It is certainly going to be harder for farmers to maintain egg production next year, because of shortages. Labor is already hard to obtain and war industries and the armed forces are drawing workers from the farms at an increasing rate. Transportation will be one of our most serious bottlenecks — both truck and rail transportation. Farm machinery and other equipment will be in very short supply. All of these factors are going to tax the ingenuity of the American poultryman to the utmost.

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## *Frozen Turkeys for Turkey Steaks*

Taking turkeys from refrigerated rooms, turkey growers of the Pacific Northwest will carve turkey steaks and have sliced steaks of the white meat ready for a summer market, in a new plan to spread the turkey market through the summer period. The turkey ranchers of Washington State, where 511,000 turkeys were raised, mainly for the last holiday season, believe they have the key for putting turkeys in general distribution between seasons, or during the dull summer period. The steaks will be cut from one-half to a full inch in thickness, with tidbits taken also from the thighs, backs, and wings.

—J. W. Kinghorne, American Poultry Journal, September 1942.

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# Dried Eggs and the War

### By J. W. KINGHORNE

Agricultural Marketing Administration

*Condensed from a Talk*

PASSAGE of the Lend-Lease Act, providing authority to purchase quantities of food products for shipment to Great Britain and other countries at war with aggressor nations, changed the whole picture of the egg and poultry industry in the United States. Eggs suddenly became a highly prized wartime food.

At the beginning of this program, our major function was to supply eggs and egg products to Britain. This meant shipping shell, frozen, and dried eggs so that the rapidly depleting supplies in England could be supplemented. Eggs in all forms were needed by the shipload for Great Britain so that she could carry on the fight against aggressor nations. Our purchases to fill these needs caused a demand for greater production—the greatest in the history of the United States. But this was only a start.

Pearl Harbor was followed by intensive submarine warfare. Production figures were revised upward once more and the wheels of industry, agricultural and otherwise, set in faster motion to keep up with the ever increasing demands of world-wide war. Then was the call sounded for Food-For-Freedom—food for our allies, food for ourselves—food enough to win the war in spite of any emergency. The response to this call has dwarfed the efforts made in the last war.

### Why Eggs are Dried

Among other relatively bulky commodities, shell eggs and frozen eggs continued to find their way to England so long as ample shipping space was available. But our entry in the war and the vital need of shipping for the transport of men and war materials to battle fronts throughout the world placed cargo space at a great premium. The whole problem of getting food to war-besieged countries changed. Bulky foods were out of the picture. Shipping space was too precious for them. The only answer to the problem, if variety in food supplies was to be maintained, was the utilization of more dehydrated foodstuffs.

Dried eggs supplied the answer to one of the problems and the British Food Ministry was not long in requesting that all lend-lease eggs

From, "The AMA's Work During the Last 12 Months"
Presented at IBCA Convention, Grand Rapids, Mich., July 21, 1942

for the British be supplied in dried form. This meant a great saving in shipping space, with the added advantage that dried eggs could be shipped without refrigeration. Dried eggs were being shipped in barrels containing 150 to 200 pounds, each barrel occupying about 8 cubic feet of shipping space and containing the equivalent of 450 to 600 dozen shell eggs. Twenty cases of shell eggs, or 600 dozen, would require at least 40 cubic feet of cargo space—enough in which to store five barrels of dried eggs, or the equivalent of 2,230 to 3,000 dozen shell eggs.

### Increasing Productive Capacity

Our major job in the AMA after Pearl Harbor became one of seeing that there was sufficient production to meet the constantly increasing demand for this vitally needed wartime food product. Many of you know the difficult problem we faced in this respect slightly more than a year ago. Egg drying had never been a major industry. The drying done was entirely seasonal—a project operating for a few months in the season of greatest egg production. Only once in the history of the industry had production of dried eggs in this country exceeded 10 million pounds; and since they were not an important product in the last war the industry had taken no steps to gear itself for war production, even when it became obvious that our involvement in this war was only a matter of time.

It was the British who first sounded the call for dried whole eggs in large quantities in this war. This call came before Pearl Harbor. The initial request was for 60 million pounds. This was staggering in the face of the usual annual production of 7 to 10 million pounds. This was the annual output of about 16 egg drying plants in the United States located principally in Texas, Oklahoma, and Missouri. Their normal operating season for drying was during the months of peak egg production, usually from mid-March to mid-July. Their combined production was just about sufficient to meet normal domestic requirements.

### Emergency Plan

Following the British request, a small group representing the industry was called together in April 1941, by the Agricultural Marketing Administration. They were offered the suggestion that these 16 drying plants be operated on a "round-the-clock" basis so that about 50 million pounds of dried eggs could be produced by July 1942. Under this plan they increased their operations to a full 20 to 22 hour day and worked 300 days a year instead of the usual 4 month period. This was the Department's plan for meeting a large part of Britain's initial requirements. But greater capacity had to be found, since British needs and domestic requirements took a total

of approximately 114 million pounds annually.

Through expansion of existing drying plants and priority allocations for new plants and equipment, annual capacity was stepped up sufficiently to meet all of these needs. By November 1941, annual capacity was estimated to be 167 million pounds. Increased demands for the product came following Pearl Harbor, and, while expansion today is much less rapid than it was, present capacity, barely 10 months after expansion started, is nearly 300 million pounds a year and may go slightly above this figure.

Centered largely in three states at the beginning, the industry has now expanded to 25 additional states. Texas today holds first place with an annual capacity of more than 58 million pounds. Capacities range from 15 to more than 45 million pounds in Iowa, Kansas, Minnesota, Missouri, Wisconsin, Nebraska, and Oklahoma.

### AMA Purchase Program

Up to July 1, more than 123 million pounds of dried whole eggs have been bought by the AMA, primarily for lend-lease shipment. Including that which has been placed under contract for future delivery, the total is in excess of 212 million pounds. In a few words, the picture today is this. Eighty-five drying plants operating 20 to 22 hours a day, 300 days a year, produce at the rate of 300 million pounds annually, 30 times the maximum quantity ever before produced in this country in a single year.

What does all this mean in terms of shell egg production? To produce 212,000,000 pounds of whole dried egg, it will take 7,784,577,720 shell eggs. Expressed in another way, this is equal to all the eggs produced in Ohio, Illinois, Michigan, and Wisconsin in 1941, plus over 17 per cent of the eggs produced in Indiana that year.

### Quality Improvement Work

In spite of the rapid physical changes the industry has undergone to keep pace with constantly increasing demands for the product, it is a well-knit industry which has settled down to the all-prevailing idea of making the best possible product. Industry committees are working closely with Department of Agriculture scientists and technicians toward this end. Peacetime survival of the industry, it has been pointed out, hinges upon its success in making dried eggs something more than a "substitute" food. The wartime demand for dried eggs has been in the nature of a challenge to the manufacturers to make a product good enough and wholesome enough to serve to their own special guests in their own homes. This is the goal that the industry is working toward in exchanging plans and operational techniques through its own initiative and technical committees.

Plant by plant investigations are being made of every process used in the manufacture of dried eggs in a field laboratory operated jointly by the Agricultural Marketing Administration and the Bureau of Agricultural Chemistry and Engineering. Dr. H. E. Corealine of the BACE is in charge of the laboratory and, with his staff of trouble shooters, makes a thorough study and complete test of the manufacturing operations of each plant. These efforts are directed toward making a better and more palatable product and are in the nature of a service to the industry.

### Packaging Methods Changed

Originally dried eggs were sent to England under lend-lease in barrels of 150 to 200 pounds, as I have mentioned previously, and they were distributed to bakers and food manufacturers who used the product in large quantities. When the British Food Ministry decided to take all of its requirements of eggs in the dried form, need developed for dried whole eggs in consumer-size packages—packages which could be distributed to individual consumers in Great Britain and thus add to the scanty ration of shell eggs each receives every month.

Today, 10 concerns in the United States equipped to do the job are under contract with the AMA to package dried whole eggs in boxes containing 5 ounces, or the equivalent of a dozen shell eggs. This job was started less than two months ago and will soon be carried on at the rate of 17 to 20 million packages per month for shipment to England alone. It is barely a month since distribution of consumer-size packages first started in England. The rate of distribution, so we understand here, is one package per month for each family of three, or one package per person each three months. In this manner, the dried eggs supplement the ration of fresh shell eggs which amounts to four per month per individual in the summertime, but only one per month during the winter.

Only recently the British called for the development of an "in-between" package of dried eggs so that distribution of the product to the smaller bakers and food manufacturers in England can be simplified. When it is finally developed, this package, if it follows British desires, will contain about 14 pounds of the product, and to expedite handling and shipping, four such packages will be packed in one carton.

### Used by Armed Forces

Use of the product by our air forces also is contemplated, and a waterproof and lightproof package which can stand high altitudes, low temperatures, and rough handling is now being developed for this purpose. Army requirements have increased materially since Pearl Harbor. Now nearly 95 per cent of the Army's requirements of dried whole eggs will be for table use, but only about 5 per cent will be used for cooking and baking purposes.

The expansion of old plants, the building of new ones, the remodeling of milk plants, packaging problems, and the constant search for ways and means of making a better product, are all important steps that have been taken.

### What's Ahead for the Industry?

As a result of widespread use of dried egg powder brought about by wartime, the industry is looking forward to probable acceptance for the peacetime future. The future is reasonably assured if the returning soldier has found it a palatable product and if the British housewife has found it acceptable in every use to which she has put it. Without acceptance for home cooking and table use, post-war prospects would probably be as limited as they were in pre-war days.

Industry leaders join Department of Agriculture officials and technicians in the belief that transition from a wartime to a peacetime basis will not necessitate a major upset in the physical properties of the industry because care, forethought, and common sense have been exercised in the expansion of facilities. Egg drying plants today, which produce 300 million pounds a year, by operating up to 22 hours daily, can reduce their output to a reasonable peacetime level without resorting to factory shut-downs.

### Developing New Uses

The ability of this industry to meet the return of normal conditions will depend much on the development of new outlets and uses. In considering the future outlet for poultry and egg products, the statement has been made that if the industry can maintain our per-capita consumption, it will do well. Many persons feel that per-capita poultry and egg consumption should be increased, but believe we cannot seriously consider such a program when we realize that egg and poultry products are in direct competition with many other types of food. I do not think we can increase our per-capita consumption of eggs to take care of the increased production tempo that we are now working under in all branches of the industry on the basis of shell eggs alone. We have got to sell the American public, and especially the American housewife, on the use of eggs in another form.

The secret of success of our large food processing industries has not been the increased consumption of a single product but has been based on the increased consumption of that product in another form—new uses, new applications, new taste sensations, new health benefits, and countless other appeals that are made through advertising to stimulate the purchase of products that are in direct competition with the products of this industry.

I believe that if the poultry industry is to expand even along normal lines when the war is over, it must be accomplished by selling the American housewife on the use of dried eggs for cooking purposes as well as for table use in addition to shell eggs. The extent of the success of such efforts will, I believe, be dependent on the ability of the industry to produce a quality product, reasonably priced and readily available, backed by an extensive and continuous all-industry effort.

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## *Six Essentials of Nutrition*

Every poultry nutritionist knows the history of feeding mash to poultry flocks. Mash feed for poultry first appeared about 30 years ago and the use of mash feeds has developed greatly during the last 20 years. The big impetus to the mash feed business came about 15 to 20 years ago when the use of fish oil containing vitamin D gave vitamin insurance to commercial feeds and a factor of safety to poultry production. The skill of poultrymen has developed through the years at an equal pace. The commercial poultryman, or the poultryman carrying the feed bucket, is probably more competent to judge than anyone else whether the six essentials of nutrition are present in the proper amount and in the proper form to produce the desired results.

Desired results are more readily obtained when natural vitamin products are used. Natural vitamin products are essential for the life, health, and production of our poultry flocks.

A poultry ration is composed of six classes of materials: proteins, carbohydrates, water, minerals, fats, and vitamins.

1. Proteins are required for tissue growth and repair.
2. Carbohydrates are needed for energy and fat manufacture.
3. Water is the necessary medium of all reactions in the body.
4. Minerals are required for bone development and for numerous unknown or imperfectly-understood body reactions.
5. Fats are needed for energy and reserve food storage.
6. Vitamins are essential as accessory nutrients in animal metabolism.

All of these must be present in a ration in balanced proportion in a form suitable for the particular class of livestock or poultry to which it is to be fed.

—Borden News Bulletin, August 1942.

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# Good Management in War Time

### By R. E. JONES

Connecticut State College

*Reprinted from American Poultry Journal*

GOOD poultry management in war-time is good poultry management for any time, but there is one significant difference in our present emergency. Under normal conditions, the poultryman who uses poor management is a detriment primarily to himself; under war conditions, the poultryman who uses poor management is a detriment to the entire nation in our fight for liberty.

It is every poultryman's duty to produce just as many eggs as he can, economically, but not beyond the point of economy, because man power is at a premium. To establish an efficient poultry production unit may mean that some poultrymen should go out of business and others increase their poultry capacity. Efficiency must be the chief aim.

Although many points in efficiency can best be worked out to meet conditions on the individual farm, efficient poultry management may be summed up, in general, under the following headings.

### Good Stock

There was never a time when good poultry breeding paid better dividends than today. An egg-laying test report will show that the best pens are laying twice as many eggs as the poorest. The same condition exists on commercial poultry farms. The extra cost of the better stock is paid for several times over during the year from increased production Good stock must have high fertility and hatchability, rapid chick growth, early feathering, early maturity, and good size. In other words, the flock must reproduce efficiently; pullets must come up to standard egg size quickly; they must lay heavily with high quality eggs over a long period; high livability and freedom from disease or susceptibility to disease must be demonstrated by chicks and mature stock. High egg production is not accidental, it is not beginner's luck, it is a product of good breeding, in good hands, under favorable conditions.

### Hatch Early

The proper time to hatch or the advisability of year 'round hatching may vary under different conditions. The poultryman's goal should be the largest number of laying hens from which to produce the greatest possible volume of eggs to sell at the

American Poultry Journal, 536 S. Clark St., Chicago, Ill.
(American Poultry Journal, September 1942)

highest possible average price, making the best use of the equipment he has available. On most commercial poultry farms, this means filling all brooder houses to capacity with chicks the latter part of January or February, with a second lot of chicks, if necessary, as soon as brooders can be emptied and made available by transferring pullets into summer shelters,—usually not before the first of April.

### Use Equipment to Advantage

The next step in the program depends on the type of houses and equipment available. These early-hatched pullets will start laying and be ready for laying houses the latter part of June or July. At that time, pullets of the previous year should be laying 50 per cent or better with several months of profitable production ahead of them. Here is where we want to have our cake and eat it too, and it can be done by using either the barracks system or laying shelters.

The so-called barracks system, developed in Connecticut during World War I, has been frequently misrepresented as any kind of a structure to hold hens temporarily during summer. The original barracks system involves early brooding as well as carrying laying hens through summer and fall. The ideal barracks house is a combination brooder and laying house constructed warm enough to be economical for early brooding with large north openings, windows or doors, or both, to insure even lighting and an abundance of air circulation during summer.

### Use Houses More Than Once

This house should be deep, with abundant floor space for early-hatched chicks and a hen capacity of 1/3 to ½ the normal laying flock. It may be one, two, or more stories high. Yards are not necessary. Roof insulation is important, both from the standpoint of heat loss in winter and protection against heat in summer.

The ordinary 24 by 24 foot laying house with two sections of pits on the side walls from rear wall to center post, and two large storm sash, hinged like doors, in the north wall, is ideal. This house is used for brooding in January. It may be used for a second brood in April and emptied to receive laying hens the latter part of June or July. The hens will remain in the barracks house until November or December, when they stop laying or production drops below the profit point.

The summer laying shelter is a low cost, temporary, summer laying house, not a brooder house. It may be used to supplement the barracks house or to replace it, if brooding is done in small colony houses or with centralized brooding equipment not adequate for summer laying houses. When hens are transferred to the barracks house or laying shelter, they may be crowded considerably more than hens normally housed for winter; 2 to 3 square feet per bird is adequate.

### Keep Laying Houses Full

With this system of management, hens are being asked to lay 14 and 15, and frequently 16 and 17, months straight with little or no molt. This requires good breeding and good management. The advisability of year 'round hatching to keep laying houses full depends upon the ability of the stock to live and lay and whether or not the barracks system is being practiced.

On poultry farms where chickens are brooded in colony houses or in a centralized brooding system which cannot be used as a barracks house, it may be advisable to hatch the year around. In any case, some means must be used to keep laying houses full. With year around hatching, it is never possible to have more than the laying houses full, while with the barracks system, it is possible to have the number of laying pens, through the high priced egg season, 50 per cent greater than the laying house capacity.

### Keep Equipment in Good Condition

Good equipment is necessary for efficient poultry management. Very little equipment can be changed because of war-time emergency needs, but that available can be kept in good condition and used to advantage. Brooding costs, particularly labor, can be reduced by brooding more chicks at one age at the same time. This does not mean increase in the size of unit, as a rule. It does mean brooding in large houses with sufficient floor space to carry early-hatched chicks through to the time they go out in shelters, without crowding.

It is usually possible to decrease the amount of brooder fuel consumed and do a better job of brooding by operating with a warm hover and a cool room. This may be done by lowering the hover, increasing the depth of litter, or even using a hover curtain.

Labor for the brooder house cleaning may be cut to a minimum by using deep litter, stirred up occasionally, and not changed during the brooding period of 8, 10, or 12 weeks. This, by the way, is a very satisfactory coccidiosis control program, providing the room is kept cool and litter kept deep, fine, and dry.

### Avoid Waste in Hoppers

Good feed hoppers are a purchase the poultryman can afford to make even under emergency war conditions, providing they increase feeding space per chick and reduce wasted feed. Good hoppers compared to wasteful hoppers will pay for themselves several times over in a single season.

Automatic water fountains are an essential piece of equipment for brooder houses, chick ranges, and laying houses. Carrying water is the largest single labor item on a poultry farm. We simply cannot afford to carry water with the present high labor costs.

Minor alterations in laying houses, such as slot ventilator openings at top of front wall, provided the house is suitable for slot ventilation; putting in pits to replace drop boards; cutting larger openings in north wall for summer ventilation; re-roofing, if needed, and in some cases, ceiling insulation, may be justified.

### Good Feed and Management

Good feed is always essential. Experiment stations, feed companies, and manufacturing concerns are working to devise ways and means of providing substitutes for feed ingredients no longer available. Remarkable results are being obtained, and the poultryman's problem continues to be the art of feeding which will enable him to obtain the heaviest feed consumption.

There are many different successful systems of feeding, but use of artificial lights is something that cannot be passed by. Some sections of the country are facing a full blackout requirement for the duration. A satisfactory and economical method of blacking out poultry houses has not yet been devised. At present, it seems best to feed early and late, use pellets and even wet mash, if necessary, to induce satisfactory feed consumption in the daylight hours.

Where artificial lights can be used, summer lighting of old hens from 2 or 3 a.m. until daylight, may be started as early as July 1 and continued until the hens stop laying. Pullets are best operated on a 12 hour day, lighting from 6 to 6. This system gives good results, and if discontinued because of blackouts is much less serious than a longer lighting program.

The best poultry efficiency yardstick available is the analysis of a complete set of poultry accounts. Such a system does not need to be expensive or cumbersome. Three goals we can apply to any poultry enterprise, regardless of size, are: at least 180 eggs per bird per year; at least 25 eggs per bird in October or November; not more than 10 per cent mortality annually. Three goals applied to a commercial poultry enterprise are: efficient labor – $5 sales for each $1 labor cost, including operator's labor; $1 sales for every $1 invested, including the farm, home, and entire poultry enterprise; volume of business of not less than $10,000 per year. These yardsticks are based on actual poultry farm accounts over a period of years.

### Meat Production a Side Line

Meat production under our present war emergency is a very important side line. Culling should be practiced regularly and carefully, culls being sold for meat when they are slowing up in production and still have a good meat value. There are many arguments in favor of marketing the entire laying flock each year and replacing 100 per cent with pullets, particularly in the heavy breed areas. Buying sexed pullets is a convenience, and in many cases a distinct advantage, where brooding capacity is limited, but there is still a profit in growing heavy breed cockerels for meat where brooding capacity is available.

Good poultry management in wartime is really the art of producing more food, eggs, and poultry, from the equipment, feed, and man power available.

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## Colored Feathers Needed

At a meeting recently held in Chicago of local feather dealers and representatives of the packers, the present feather situation was discussed. Owing to the vast needs of the military forces for feathers, in addition to normal civilian needs, feathers are greatly in demand. The WPB has already limited the use of duck and goose feathers for military purposes. This has thrown the demand entirely on chicken and turkey feathers. In Great Britian, large quantities of colored feathers have been used for camoflage purposes.

The seriousness of the situation was discussed, and both feather dealers who buy and process the feathers, as well as packers and others who accumulate feathers in large quantities, are urged to do everything possible to make feathers easily available for our armed forces. Poultry packers and others who kill poultry in large quantities are urged to save colored feathers and dispose of them through regular feather dealers.

—American Poultry Journal, July-August, 1942.

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A CANARY cage suspended from the ceiling of the poultry house breaks up broody hens very quickly on the farm of Earl Groom, Oklahoma poultry raiser, according to The Southwest Poultryman. An occasional whirl of the cage helps biddy to forget her setting inclinations.

TWELVE men recently spent most of a week in Washington, D. C., stuffing themselves with custard, cake, and scrambled eggs, says the New York Times. They were being trained as egg testers to sample dried eggs being shipped under lend-lease.

# Schedule Changes that Save Time

### By EDMUND H. REEMAN

*Condensed from New Jersey Farm and Garden*

WASHING out the waterers formerly was the first job of the morning around this place. Now having been without help for the past three weeks, we have organized a full blown revolution and turned the whole business upside down.

Instead of tending to the waterers first thing in the morning, I now go through the houses at dusk and wash out the waterers after the birds have gone to bed. It was just a crazy notion at first to save a little time in the morning when things have a way of piling up rather heavily. But I have come to feel that there is a good deal to be said for the new way of doing things.

## Cleans Waterers at Night

The other way, the birds started their day's drinking with the filth of the previous day still in the pans from overnight, since it was seldom that we were at work in time to beat the birds to the water fountains. In hot weather I doubt whether the pans really cooled off from the heat of the previous day during the night. This way they find a clean pan of cool water to start off with the very first thing, since there is nothing to heat it up or dirty it during the night. Also I don't have to rush around and be late for my own breakfast trying to get all the slime and muck out of those pans.

## Running Water Saves Cleaning

Some better poultrymen than I, of course, probably run around several times a day washing out waterers and seeing that the water is always cool and fresh, but I have never been able to find time to clean waterers more than once a day. I do try to adjust the valves so that there is never too great a reserve in the pans at one time, which means that fresh water is running pretty frequently. In the evening I can go through the pens in a leisurely fashion, not being pushed for time, look things over (if it isn't too dark) and cogitate generally upon the poultryman's life and problems. Sometimes I come to the conclusion that it isn't half a bad life at all, all things considered. And then at other times I think what a fool I must have been to ever imagine I could raise chickens.

Another angle of the revolution that the shortage of help has brought about is in handling the ranges. Here again, we used to make the morning trip the major one of the day, filling mash hoppers, tending to waterers and doing most of the odds and ends, leaving only the grain to be carried and fed on the evening trip

I always preferred to see the hoppers empty early in the afternoon, a few hours before grain was fed. Well, this way they are certainly empty by the time of the afternoon round. Indeed, a chance trip or two of inspection has revealed that some of them are empty by noon. So the birds get a breathing space between feedings just the same. And if they want to take in a supply of mash as well as grain in the cool of the [illegible]

bushels of beans, or tomatoes, where they worked hard enough to pick one before, and who are even more definitely limited than we poultrymen are in the number of acres they can plow and crop and cultivate and harvest.

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(New Jersey Farm and Garden, August 1942)

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¶ BILL GOODMAN, head of a Detroit poultry concern, gained a suspended sentence in police court when he explained the cause of a blackout violation during an air raid test.

Goodman told the court that all lights in his poultry plant had been turned off, but one of the hens in the battery pecked through the bars at a dangling light cord that switched on the light. His story stuck.

—American Egg and Poultry Review, September 1942.

# Schedule Changes that Save Time

By EDMUND H. REEMAN

*Condensed from New Jersey Farm and Garden*

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### Cleans Waterers at Night

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again, we used to make the morning trip the major one of the day, filling mash hoppers, tending to waterers and doing most of the odds and ends, leaving only the grain to be carried and fed on the evening trip around. Now all I do in the morning is go to the range as early as possible, trot around and open the doors and watch the birds make their grand exit. This, of course, only takes a few minutes and is more like a morning constitutional in the cool fresh air than a round of chores. In the early afternoon I load the truck with the day's quota of mash and grain, drive from house to house and do all the chores at one time. There are three hoppers in each house — two of which I fill with mash, the other with grain. The large double outside hoppers are filled at the same time, one half with mash, the other half with oats.

### Hoppers Empty in Afternoon

I always preferred to see the hoppers empty early in the afternoon, a few hours before grain was fed. Well, this way they are certainly empty by the time of the afternoon round. Indeed, a chance trip or two of inspection has revealed that some of them are empty by noon. So the birds get a breathing space between feedings just the same. And if they want to take in a supply of mash as well as grain in the cool of the evening, or gobble up all that is left first thing in the morning, I feel that is their affair and as far as I can see does no great harm.

### Labor Problem Will Grow Worse

It looks as though the general farm labor problem is going to grow progressively worse, instead of better, so it behooves us all to cast around and see how we can revise our schedules and save ourselves every bit of reducible work and every unnecessary step. After all, difficult as this labor problem may be for us poultrymen, it must be a great deal more difficult for the farmers with perishable crops to harvest and who simply cannot multiply their own two hands enough to pick two bushels of beans, or tomatoes, where they worked hard enough to pick one before, and who are even more definitely limited than we poultrymen are in the number of acres they can plow and crop and cultivate and harvest.

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BILL GOODMAN, head of a Detroit poultry concern, gained a suspended sentence in police court when he explained the cause of a blackout violation during an air raid test.

Goodman told the court that all lights in his poultry plant had been turned off, but one of the hens in the battery pecked through the bars at a dangling light cord that switched on the light. His story stuck.

—American Egg and Poultry Review, September 1942.

# What We May Expect on Egg Prices

By W. D. TERMOHLEN
Surplus Marketing Administration

*Condensed from a Talk*

I KNOW that you would like to have me make some prediction of egg prices on which you could base your farm program for the present and the months ahead. A couple of years ago we could do a fairly good job on both current and future prospects, at least sufficient to guide you in planning your operations and to relieve the uncertainty in your mind. But now war makes it practically impossible to satisfy your desire.

## General Outlook

In equipping and getting men to the Southern Pacific, to England, to Africa, and to many other spots, we have used up a lot of accumulated materials. We are not going to have even as much metal and other critical materials to make poultry equipment in 1943 as we had in 1942. All poultrymen must keep their equipment in good condition and repair. Labor gets scarcer and scarcer as more and more men go into the armed forces and our war factories. There will have to be a lot of women doing jobs on commercial poultry farms and in hatcheries which have been done by men, and the sooner we realize this and get them trained the better.

The feed situation probably will not be as favorable as it was last year. It is rather expected that farm stocks of feed grains will be substantially reduced by July 1, 1943, depending on the trend in hog production and on the extent to which the very large supply of wheat is utilized for feed. Grain prices probably will advance some. However, such supplements as oil-seed meals and dry milk suitable for animal feeding probably will be available in larger supply. Several of the supplements are under price ceilings.

This can all be added up to mean that the egg-feed price ratio probably will decline a little, but it is likely to continue favorable for production. Transportation, whether by automobile, truck, rail, or water, is going to be one of our most serious bottlenecks.

Burlap bags are going to be scarce as the proverbial hen's teeth.

## Prospects on Egg Goals

It is still too early to give you definite information as to the goals which will be established for the poultry industry for 1943. Staff members of the department are progressing rapidly toward projecting these goals and it is expected that announcements will be made early in the fall. My personal opinion is that the 1943 egg goal will probably be somewhat larger than that for this year. I doubt if we will encourage any expansion of broiler production because eggs are needed more than broilers and if poultry meat is needed for our armed forces at the front or our Allies it will be canned, and that calls for the heavier chickens. Eggs are the more important war food of our industry. It is all right to produce a little too much, for today with our egg drying industry we can preserve the food and not waste it.

## Poultry is on the Food Front

This industry is a mighty important part of the essential home front —don't forget that for a moment— eggs play one of the key parts in the national nutrition program. This war has really brought the recognition of the importance of eggs in the kind of diet which builds healthy, strong, vigorous bodies and clear, alert minds. Not only must we produce enough eggs to keep our civilians, our war workers, and our fighting men well fed, but we must produce probably over 30 million cases for drying. That amounts to more than 10,800,000,000 eggs. The huge drying industry that has sprung into existence in the past few months will need at least that many eggs for drying.

Everyone talks and hazards guesses as to the establishment of a second fighting front. We must let our military experts make this decision. But this food front here at home is already a mighty important second front. It is a front in which we lead the world, and the poultry section of the food front is one of the blue ribbon divisions.

## Continued Effort Needed

In spite of any difficulties which may face the poultry industry, it cannot slacken its efforts one little bit. The ingenuity of poultrymen is going to be taxed to the limit.

I have talked a lot about uncertainty, but the poultry industry does not have nearly the uncertainty that many industries are faced with in this country. Last fall the secretary of agriculture, Claude R. Wickard, stated when he asked for increased egg production (and reiterated the statement in January) that until July 1943 the Department would support egg prices at least at 85 per cent of parity. In the 10 months beginning last October, U. S. farm egg prices have averaged practically 95 per cent of parity. So far, no one can say that the Department has not lived up to its part of the bargain.

In July of 1941 eggs were at 100 per cent of parity, the average U. S. farm price being 25.6 cents. In July of this year eggs were again at 100

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per cent of parity, the average U. S. farm price being 29.5 cents, or nearly 4 cents higher than last year. Actually, prices are about 15 per cent higher this year than last, even though some 16 per cent more eggs have been produced thus far in 1942. It is also of interest that we must go back to 1920, 22 years ago, to find a July when average U. S. farm egg prices were higher than this year. Another interesting fact is that in July of 1917 egg prices averaged, for the U. S., 29 cents, or less than July in the first year of World War II.

Based on this past history and the supply and demand factors existing today, it does not look as though farmers need worry about prices of eggs averaging lower than they did in comparable months last year, but, rather, it seems prices will average somewhat higher. If anything, it seems we might have the possibility of egg prices getting too high. This might result in some action on the part of the Government.

Secretary Wickard has urged farmers to lead the way in the battle to whip inflation. I am confident that the members of the poultry industry will do their part in fighting this battle, just as they have done so magnificantly in fighting the battle for production. Poultry people have had their tummies full of inflation and deflation, they know the evils of both and the ill effects on the economic structure.

For more than meeting the goals established for 1942, the poultry industry not only deserves the "E" pennant for efficiency and excellence, but deserves a medal of valor for a distinguished job. In spite of the uncertainties, the sacrifices, the call for ingenuity, goals have been met and surpassed. The poultry industry is going to meet every test and will come through with flying colors.

## Obligated to Produce Good Eggs

It seems to me we have an obligation not only to produce food for our working and fighting men and our allies, but to see that it's still good when they get it. That means we must take care of the eggs—on the farm, in the produce house, and all the way down the line; take care of them not just because good eggs bring a better price, but because we can't afford "duds" in a case of eggs any more than we can in a load of bombs.

The care must begin on the farm—as soon as possible after the eggs are laid. And surely there must be someone on every farm who can make it one of his or her wartime jobs to see that the eggs are gathered twice a day and cooled quickly so people will have good food.

—Copyright, Aug. 20, 1942, Frank Priebe's Weekly Letter to Poultry Raisers.

# WAR AND THE POULTRY RAISER

### Price Ceilings Expected for Eggs and Poultry

Poultry and egg prices, now gradually moving upward in response to increased consumer demands, partly because of the shortage of red meats, are expected to be brought under some sort of price regulation, probably before full-fledged meat rationing starts in early 1943. There are no indications as yet regarding just what basis might be used in determining maximum prices for poultry products.

### Meat Rationing Due

Rationing of red meats is expected to start about January 1, according to information released on the first of September. Meatless days may be instituted before that time, especially in areas distant from packing centers. To fill the gap left by shortages of beef, pork, and mutton, U. S. Department of Agriculture and Office of Price Administration leaders suggest greater use of poultry, eggs, and cheese as a source of protein in the diet.

### Vitamin A Maximum Raised

An additional 1,000 vitamin A units may be incorporated into mixed feeds, announced the WPB on August 28. This allows a total of 2,000 units per pound in starting, growing, and laying feeds and 3,000 units in turkey and poultry breeding feeds.

The change was made because supplies of vitamin A are great enough to allow the additional quantities to be used without depleting stocks and because feeds in some sections of the country are low in vitamin A this year and need reinforcement.

Under the order as amended, farmers who mix their own feeds are exempt from the regulation.

### Vitamin A Oils and Concentrates Under New Price Regulations

Maximum Price Regulation No. 203, Vitamin A Oils and Concentrates, issued by the OPA on August 15 to go into effect on August 30, sets prices of natural oils and concentrates from which vitamin A is derived. Prices are stabilized at levels considerably below those prevailing during the speculative flurry in late 1941.

The regulation applies to everyone who sells the natural oils and concentrates, and removes such products from the provisions of the revised Fats and Oils Schedule, which went into effect on August 20.

### 100 Per Cent of Parity

Secretary of Agriculture Claude Wickard in late August announced that agriculture was willing to do its part in breaking the upward spiral of food and labor prices by allowing ceiling prices to be set on agricultural products when prices reach 100 per cent of parity, rather than 110 per cent, the previous level at which ceilings could be set.

With agriculture having gone more than half way in attempting to keep living costs down, and thus prevent outright inflation, labor may be forced to give ground and cooperate in the national effort to win the war on both the home and fighting fronts, believe some observers.

### Feed Wheat Available

The Commodity Credit Corporation's surplus wheat, now being distributed in the feed wheat program, will be supplied to any county in the United States upon proper certification that it will be used for feeding poultry or livestock. Information on the program may be obtained from county AAA offices or committee members throughout the nation.

### Scrap Metal Drive Intensified

The drive for scrap metal, now in full swing under the direction of the Conservation Division of the WPB, has been greatly intensified, for 17,000,000 tons of scrap are needed by the nation's blast furnaces and other metal manufacturing plants before winter. Scrap metal is an essential ingredient of many alloys, and war industries will bog down without a continuous flow of scrap, say conservation authorities.

Every farm, every home, every office, and every factory can contribute something to the effort. Should the goal not be met, capacity operation of war industries is impossible, which means a longer, more costly war.

## *CCC Tents for Range Shelters*

Harvey Wonder, 18-year-old Jonestown, Pa., poultryman, showed foresight when he bought two large tents and one small one, for $14.50 and $7.50 each, from a CCC camp that was being disbanded, says Ralston Hannas in the American Poultry Journal for September 1942.

The tents have served as range shelters for two years and will last for years longer with a little care. Roosts built inside the tents are cleaned once a week.

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# More Hens or More Health?

### By CLIFF D. CARPENTER

*Reprinted from Feedstuffs*

IF the available knowledge of poultry disease control were utilized fully, the present adult poultry mortality and loss of egg production from disease in this country could be reduced 50 per cent in one year.

When it is realized that adult mortality has doubled in the past 20 years, that $150,000,000 worth of layers are buried each year, and that these layers represent a loss in egg production of 1,500,000,000 dozen eggs, it can be seen that, to fight this war successfully with eggs, the holes in the home front battle lines must be plugged.

Secretary Wickard has asked for an increase of 700,000,000 dozen eggs in 1942 over the production of 1941. If attention were focused properly on applying known methods of poultry disease control, this goal could be met without any increase in the present poultry population. In fact, if adult poultry mortality were lowered 18 points (from 40 to 22), 20,000,000 to 30,000,000 dozen more eggs would be produced than the war increases call for.

When the average farmer houses 100 5-month-old pullets on Sept. 15, he knows that by July 1 of the following year 40 will be dead or worthless. No other species of farm animal could continue to play a major role in the income of farmers of this country, and in the nutritional welfare of its people, and annually bury 40 per cent of its adult population. When brooder house and range losses are added to this figure, the total mortality is utterly astounding. It can be stated that 60 to 70 of each 100 female chicks bought die before they have completed their first production year.

Crowding is one cause of excessive poultry mortality. It may be presumed that, since the chicken is small in comparison to other farm animals, crowding results from failure to realize that, to be productive and profitable, a laying fowl needs room in addition to the actual space it occupies. When the average size dairy cow is provided with 40 to 42 inches stanchion width, a platform adequate in length, and manger space, it can be said that she is not crowded.

However, animals that are not "stanchioned," such as hogs and chickens, need living space to be profitable. Few farmers crowd pigs into cramped quarters, yet this same

The Miller Publishing Co., Minneapolis, Minn.
(Feedstuffs, July 25, 1942)

practice occurs in 80 to 90 per cent of all poultry houses.

It is recognized that heavy breeds require 4 square feet of floor space per bird; that Leghorns require 3½ square feet. This area is not just for standing purposes, but includes space to eat, to drink, to lay, and, in most cases, to roost. A 20 by 20 laying house provides sufficient space for 100 heavies, but farmers housed an average of 125 layers in this size house in 1941. Instead of each bird having 4 square feet of living space, each had 3.2 square feet, or less than that required for Leghorns.

### Crowding May Increase

Records of chicks hatched from Jan. 1, 1942, to May 31, 1942, show an increase of 16 per cent over last year. Few new laying houses have been built to accommodate these extra layers this fall, and equally few other farm buildings can be spared for conversion to poultry use. Therefore, it is logical to presume that by October 1, 1942, there will be a further reduction in floor space per bird of approximately 16 per cent. The best estimate that can be made is that each bird of the heavy breeds will have only from 2.7 to 3 square feet of floor space for the laying season of 1942-43.

The demand is for more eggs, yet decreasing floor space per bird in an already crowded house brings two factors into operation, both of which tend to reduce the national egg crop. As floor space per bird decreases, egg production per bird decreases and mortality increases!

Can it be that the ingenuity of the American farmer is failing? Can it be that a dearth of educational agencies, both federal and state, exists to the extent that the American farmer cannot be sold on more economical methods of producing eggs for the United Nations? The American farmer has at his disposal more information on feeding, breeding, and management than any other poultry farmer in the world. Experiment stations, state colleges, and extension staffs are chockful of the whys and hows to do a better job. The problem, then, seems to be that we are not selling the farmer on putting known facts into use; on making more money by doing a better job; in being more patriotic by conserving further the animal resources of this country.

### Poultry Plan Prepared

With the attack on Pearl Harbor, the Poultry Committee of the American Veterinary Medical Association went into action. This committee represents the poultry interests of 12,000 veterinarians in the United States. To the committee, conserving the adult poultry population of the nation seemed the most expedient and certain method of attaining the new high goals for egg production. Accordingly, a detailed program was prepared and submitted to Dr. John R. Mohler, chief of the Bureau of Animal Industry, in the USDA.

The committee pointed out that just increasing the number of layers would not absolutely guarantee necessary increases in production. They showed that, if attention were focused on increasing adult livability, and thereby increasing egg production per bird, the suggested goals of production could be reached, without housing any additional layers. Further, they emphasized that such a program was additionally constructive in that its effects would be lasting, and required little or no added cost to the farmer.

### Long Time Program Needed

No doubt, 1943 and 1944 egg production goals will be above those set for 1942. A long range view, then, should be taken; a long time program planned and executed if the enemy is to be "fought with eggs."

The midwestern states are the egg basket of this country. Two million or more farmers in this great corn-hog belt keep 100 to 300 layers each. Since chickens are viewed by many as a sideline, and further, since they provide only a small per cent of most farmers' incomes in this area, they often do not receive the same careful attention that is usually given to hogs, cattle, and corn.

The program, national in scope, contains little that is startingly new, and nothing of a magical nature, unless horse sense falls into one of these two classifications.

### Control Measures

The measures offered by the poultry committee comprise improvements in the following:

1. Specific disease control.
2. Management practices.
3. Feeding practices.
4. Breeding.

In spite of the fact that specific methods are available for the prevention or control of lice, mites, roundworms, cecal worms, fowl pox, pullorum disease, and laryngotracheitis, it is estimated that these diseases take an annual toll of 200,000,000 chicks, pullets, and layers. Most, if not all, of this loss can be prevented! To this staggering sum must be added the losses sustained in egg production, since no dead birds and few sick birds lay eggs. A further loss is occasioned by worthless birds eating mash and grain, while making no monetary returns to the owner.

In addition to the above diseases, which can be specifically controlled, much can be done to reduce losses in both eggs and birds from other diseases. As yet there are no specifics for tuberculosis, coccidiosis, infectious bronchitis (chick bronchitis), coryza (colds), fowl paralysis, paratyphoid, blackhead, and tapeworms, but losses from these diseases can be reduced, in most cases to a fraction of those now experienced by the average farmer.

Again, there is no available magic that can be employed to reduce these losses. The answers are found in utilizing adequate management and feeding practices, either to avoid these diseases entirely or to reduce the resulting losses after they have struck.

### Meeting Outbreaks

In handling outbreaks of disease in poultry flocks, several fundamentals should be impressed upon the farmer. In many ways he stands at the crossroads, and often he travels the wrong path in an attempt to eradicate disease. Very few diseases for which there are no specific controls strike suddenly. In most cases, a few birds become sick first and they spread the disease to the balance of the flock. If these early cases were discovered and removed from the flock to isolated quarters, or promptly killed and burned or deeply buried and strict sanitation applied at once, many dozens of eggs and several good layers would be saved.

### Make Daily Observations

The best known method of spotting the early cases is to take one minute each day and observe the behavior of the flock. Many successful farmers employ this practice when the grain is fed in the afternoon. When a few layers stay on the roosts or do not come immediately for their grain, an examination of these usually discloses colds, fowl pox, lice, or worms. This failure to respond at feeding time may indicate the beginning of a molt—that great tax on fall and early winter profits.

By making a daily practice of looking for any "off" birds, the cause may be quickly determined and adequate steps may be taken to prevent losses in both eggs and birds.

### Keep Houses Light

Chickens need light. The amount of mash consumed daily depends to some extent upon having the feed hoppers properly placed in a well lighted house. A dog is attracted to food by its odor or aroma. A chicken has no sense of smell, but nature, in her attempt to make up for this deficiency, has provided birds with very acute vision. A chicken has 5 to 7 times more powerful vision than man. To a layer, then, uniform color of the feed is important. Further, if the hoppers are in the dark, feed consumption may be low. The practice of painting windows red or hanging sacks over them to reduce cannibalism may deter them in this vicious habit, but in such darkened houses feed consumption may be low and egg production equally low.

Feed hoppers should be placed at right angles to the side of the house through which most of the light enters. Most poultry houses face south. In these houses feeders should be placed north and south—at right angles to the south side.

Few laying houses are provided with enough mash hopper space. At least 15 running feet of hopper space, open on both sides, should be provided for mash for each 100 birds.

Not only is plenty of water essential to egg production, but waterers should be placed near the feeders. If given adequate facilities, 100 layers will drink from 6 to 10 tons of water in a year. A hen's body is about 50 per cent water. An egg is 66 per cent water. Water is cheap, and great quantities of it are necessary for satisfactory consumption, digestion, and utilization of the feed.

Scientists are in agreement that more is known of the nutritional requirements of a day-old chick than those of a day-old baby. Principal nutrition factors which influence poultry profits are: adequate daily feed intake, ingredient quality, vitamin content of the feed, and ratio of mash to grain.

### Full Feeding Pays

If spring hatched chicks are to be profitable fall layers, they must eat enough total feed containing sufficient protein of high quality and necessary vitamins and minerals in required amounts, so that growth continues right through the first six to eight months of production.

Breeding determines how many eggs a hen can lay, but feeding and management determine how many she will lay. Years ago, feed requirements were considered in terms of minimum requirements, but today maximum consumption is the key word. In the words of one national authority, "Feed all the birds, all they will eat, all the time." Such a program assures body maintenance, steady growth, high egg production, and good resistance against disease.

Fall molts cause the American farmer staggering losses. Many of these can be prevented. During October, for example, some March hatched pullets may be laying 65 per cent, but eating only enough feed to support 30 to 40 per cent production. Eventually, body weight suffers; then egg production ceases, and, if the weather is warm, a molt occurs and many in the flock will be out of production for 6 to 10 weeks, and at the most profitable time of the year.

Chickens inherit their general livability in about the same manner as humans. It has been demonstrated that family resistance against pullorum disease and fowl typhoid can be increased by selecting proper breeding stock. Fowl paralysis losses can be reduced considerably by selecting as breeders only those mature birds which, although exposed to this disease, remain uninfected.

It is too late to improve the 1942 egg crop by better breeding. Much can be done, however, toward securing better livability in 1943, 1944, and 1945 by making proper selections of breeders this fall.

### USDA Endorses Program

After giving thorough study to the program submitted, the Bureau of Animal Industry endorsed the committee's plan and recommended its sponsorship by the American Veterinary Medical Association. To date, this association has furnished 17,000 copies of the plan to veterinarians, state colleges, feed manufacturers, and hatcherymen. But this is only a good start. The details of the plan should be available to every poultry feeder in the country. In addition to the above agencies, county agents, vocational agriculture teachers, poultry equipment manufacturers, feed dealers and salesmen can contribute much to the cause by becoming familiar with the details of the program and placing copies in the hands of employees, customers, and students.

Poultry extension specialists and poultry husbandmen throughout the nation were sent copies of the plan. They were advised that additional copies were available at cost. They were asked for critical suggestions to further advance this program. The committee has received nearly 50 replies to date. All, thus far, have recorded their endorsement and most have ordered copies for county agents, students and teachers of vocational agriculture.

If a further increase in egg production for 1943 and 1944 is needed, will it result in adding another 10 to 20 per cent increase in layers to the already overflowing houses? Or, will the American farmer, aided by the feed manufacturer, feed dealer, hatcheryman, veterinarian, county agent, and all other educational personnel, employ better management, better feeding and better breeding to help win the war?

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## *Sheep Improve a Poultry Pasture*

Grass need not be for the cows alone. It can be a storehouse of protein and vitamins and extra vitality for pullets and a resource for a sizable increase in net profits for their owners. Better grass makes better layers.

Men whose word is accepted say that the pullet grain bill for several months can be cut 15 to 20 per cent by the rather simple expedient of providing the birds with all the good grass they want to eat, maintaining the correct grass-feed intake. And among poultrymen who are experts at grass-feeding chickens, there is a strong leaning toward legumes.

A few poultrymen—possibly with a soft spot for livestock, too — let their pullets mix it up with a few sheep. Otis Day of Westford, Massachusetts, does just that. Says he came by the sheep about 10 years ago as an economical way of cleaning up weeds and brush. The sheep have stayed on, now working over the ranges in rotation with the chickens. In other years, the pullets and sheep ran together, but Mr. Day gave up that practice.

Sheep help develop a poultry range by uniformly eating down the growth with the result that a strong, lawn-like sod is established. A sheep-grazed range doesn't have so many "patchy" spots — some used too much, some too little. As sheep graze a range, they contribute to good management by eating off rough spots left by poultry, thus encouraging an even renewal growth of tender, palatable grass which the pullets relish.

With 50 acres of range available for the chickens and sheep, the Day pullets are never without adequate green feed, nor is crowding ever a problem. He does not have a rigid rotational plan, but ordinarily shifts are made every two years.

Otis Day ranges about 10,000 pullets a year and feels that good range contributes not a little to the excellent reputation his Rhode Island Red flock maintains.

Talk with the men who have good poultry ranges and you will find proof aplenty that to them grass is a resource well worth going at least 50–50 with. Often they have taken carefully selected mixtures and given them the advantage of a good seedbed on well-fertilized soil. After getting a sod well established, they have followed through with subsequent annual fertilizer applications to take care of phosphorus and potash needs and with management which prevented localized areas from being eaten and trampled to death.

In reviewing the advantages on good poultry range, the saving on your grain bill of course stands out. To reduce it by as much as 20 per cent is to take a big load off your shoulders just at that season when it seems everything is going out and nothing coming in. That saving comes largely from the protein content of grass. Protein is the expensive part of your purchased grain feed. Protein runs into dollars fast—going out if you buy it, or coming in if you grow it.

Pullets developed on good range stand up well in heavy production. Grass furnishes several vitamins essential to growth and vitality.

Put more grass under your birds and they will put a fatter wallet under your pillow! And remember that one acre properly cared for can make enough grass to keep ahead of a thousand vigorous pullets. It's been done.

—Eastern States Cooperator, September 1942.

# POULTRY RESEARCH

### Large Tumor of Chicken

A large tumor, constituting 65.2 per cent of the total weight of a cockerel, is reported by E. P. Singsen and F. W. Cook of the North Carolina State College of Agriculture and Engineering in Poultry Science (Vol. 21, No. 4).

The growth was fibrous in nature, firm to the touch, glistening, and mottled white, red, and yellow in color.

### Navel Infection in Turkeys Related to Impetigo in Man

Evidence that infectious omphalitis (navel infection) in newly-hatched turkey poults might be related to impetigo staphlogenes (impetigo) in hatchery workers was uncovered by R. B. Williams and L. L. Daines of the Wyoming Public Health Laboratory and the University of Utah, respectively, and reported in the Journal of the American Veterinary Medical Association, July 1942.

Losses of from 20 to 30 per cent were recorded in a hatchery where the only source of infection seemed to be the hatchery workers. Similar organisms were isolated from infected poults and workers. Impetigo and sore throats were common among men in the hatchery and brooder houses where the losses were suffered.

Although the evidence is not conclusive, it is suggested that others might profit from the observations made.

### Calf Scour Infection Kills Turkeys

The bacteria responsible for virulent calf scours, Escherichia acidi lactici, has been found to infect turkeys and may be responsible for considerable poult mortality, report Hubert Bunyea and Angus D. MacDonald of the U. S. Department of Agriculture in Poultry Science (Vol. 21, No. 4).

This bacteria, with Aerobacter aerogenes, has a cross agglutinating ability in the presence of pullorum antigen, and vice versa, which might complicate the reading of pullorum tests where these bacteria are present.

Both bacteria infect the ovaries, which suggests that the infection might be egg-borne, though no definite proof has been developed.

### Chlorine Dusts Not Irritating

Dusting of chicks, growing birds, and mature hens with chlorine compounds containing from 15 to 70 per cent available chlorine had no irritating effect on the respiratory tract, even when the dusting was continued for as long as 49 consecutive days, reports Stella M. Costigan in the American Journal of Veterinary Research (Vol. 3, No. 8).

When birds experimentally infected with bronchitis, laryngotracheitis, coryza, or pullorum disease involving the lungs were dusted, the hypochlorite powders did not cause more severe inflammation than that produced by the infection. Production of control and dusted birds was the same.

### Gizzard Erosion Studies

When any of several diets were fed, gizzard erosions in week-old chicks were not very severe, in spite of the fact that blood was found in the gizzard linings when the chicks were hatched, report David Miller and John C. Hammond of the U. S. Department of Agriculture in Poultry Science (Vol. 21, No. 4).

The relative quantity of an anti-gizzard-erosion factor found in the diet, rather than condition of the gizzard lining at hatching, determines the severity of gizzard erosions after the first week. The gizzard factor is destroyed by treating the diet with ethyl ether or by adding excessive quantities of cod liver oil, which indicates that the factor is unstable.

### Include Intestinal Cultures in Diagnostic Examinations

Routine examination of young turkeys in the diagnostic laboratory should include intestinal cultures, concludes J. J. Posell in the American Journal of Veterinary Research (Vol. 3, No. 8).

When 100 lots, including 366 poults were cultured, paratyphoid infection was detected by intestinal cultures and missed by routine cultures from hearts, livers, lungs, gizzards, yolks, and, in some cases, the bone marrow, in one-third of the lots. Eleven species of Salmonella other than S. pullorum were isolated by the intestinal cultures. Infection of pullorum disease was not detected by intestinal cultures and missed by the routine cultures in any lots.

### Transmitting the Bone Form of Fowl Leucosis

The bone type of fowl leucosis (osteopetrosis) was transmitted through six passages in 1 to 22-day old chicks, with 9 per cent of the 884 chicks inoculated showing typical infection, report C. A. Brandly, N. M. Nelson, and G. E. Cottral in the American Journal of Veterinary Research (Vol. 3, No. 3).

There were some differences apparent between sexes, strains, and families in resistance to this form of fowl leucosis.

### Fowl Leucosis Transmission

Blood from leucosis-infected chick, turkey, duck, guinea, pheasant, and quail embryos; from one to six-day old turkeys, ducks, and quail; and from experimentally-infected chicks, resulted in the death of embryos of the same and other species, indicating that cross-infection is possible and that the same leucosis strain may be responsible for occurrence of the disease in several species of fowl, report Morris Pollard and W. J. Hall in the American Journal of Veterinary Research (Vol. 3, No. 8).

### Crossbreeding of Turkeys

Crossing males from large strains of turkeys with females of small strains may effectively increase the weight at market age of offspring from small strain hens, concludes V. S. Asmundson of the University of California in Poultry Science (Vol. 21, No. 4).

Crosses between medium sized and small varieties resulted in offspring which were significantly more uniform in size than purebred offspring from either of the parent strains, with hybrid vigor being shown in all crosses.

### Broody Birds Live Longer

Survival among 1,369 heavy breed hens which went broody was 90.9 per cent from July to October, inclusive, of the years 1935 through 1940, while the survival of non-broody birds was 82.2 per cent, at the U. S. D. A's. Beltsville Research Center, report T. C. Byerly and C. W. Knox in Poultry Science (Vol. 21, No. 4).

### Manganese for Laying Hens

As little as 17 to 24 parts per million of manganese in rations for laying hens is satisfactory from a practical viewpoint, report Marie S. Gutowska and R. T. Parkhurst of Massachusetts State College in Poultry Science (Vol. 21, No. 3).

There were no appreciable difference in egg production, feed efficiency, fertility, hatchability, and livability between birds fed high (76 and 61 p.p.m.) and low (17 and 24 p.p.m.) levels of manganese, but the shell breaking strength of eggs laid by high-manganese pullets was significantly greater than in those from low-manganese birds.

### Excessive Calcium Lowers Value of Ration

Excessive calcium in feed for laying hens lowers the biological value of the ration, with egg production and efficiency of feed utilization decreasing as the calcium content of the ration increases past certain limits, report Marie S. Gutowska and Raymond T. Parkhurst of Massachusetts State College in Poultry Science (Vol. 21, No. 4).

It is concluded that 3.95 per cent calcium in a ration having sufficient vitamin D and phosphorous is excessive. Feed utilization and production were better with rations containing 2.35 and 2.77 per cent calcium than with 3.95 per cent.

### Loss of Weight in Eggs and Texture of Shells

Egg shell quality, as designated by the common terms "mottling," "porosity," and "texture," is directly related to loss of weight (moisture) during incubation, reports E. W. Henderson of the Michigan Agricultural Experiment Station in the Michigan Quarterly Bulletin (Vol. 24, No. 2).

When eggs scored on the basis of shell texture were incubated, evaporation increased as apparent porosity increased, ranging from an average of 10.47 per cent loss of moisture in 18 days from eggs graded "1," to 12.91 per cent for eggs graded "5" (poor or greatly mottled).

### Preventing Yolk Discoloration from Cottonseed Meal

Discolored yolks resulting from the feeding of cottonseed meal in poultry rations can be prevented by adding small amounts of ferric chloride to the ration, report A. D. Swensen, E. A. Fieger, and C. W. Upp of Louisiana State University in Poultry Science (Vol. 21, No. 4).

It was established that gossypol is the factor in cottonseed meal which is responsible for the formation, in storage, of olive colored yolks. When 0.50 per cent ferric chloride was added to all mash rations containing 30 per cent cottonseed meal, 94 per cent of the gossypol was thrown off in the feces. Feeding tests were carried on for only a short time and it is not recommended that the iron compounds be added to feeds for farm or commercial use as yet.

### Alfalfa Meal and Dried Grass Supplement Poultry Rations

Rations composed largely of grains, grain by-products, minerals, and fish oils are deficient in some factor or factors which are supplied by alfalfa meal and, to a lesser extent, dried cereal grass, report W. W. Cravens, C. E. Holmes, J. G. Halpin, and C. A. Elvehjem of the University of Wisconsin in Poultry Science (Vol. 21, No. 4).

Alfalfa meal seems to carry some factor in addition to riboflavin which is essential to development of chick embryos. Egg production was not significantly improved by the addition of either alfalfa leaf meal or dried cereal grass to the basal ration used, but hatchability was significantly improved, the addition of 2 per cent of alfalfa leaf meal preventing the usual fall and early winter slump, with dried cereal grass effective, but to a lesser extent.

# Michigan's Plan to Combat Tuberculosis

By C. H. CLARK
Michigan State Veterinarian

*Condensed from U. S. Egg and Poultry Magazine*

FROM special surveys and through observations made in carrying forward the program of eradication of tuberculosis among livestock (and in Michigan, by statute, poultry is defined as livestock) we have accumulated quite accurate knowledge as to the prevalence of tuberculosis among poultry, and also of the avian type of infection as it may affect other farm animals, particularly swine. The disease has been found quite prevalent among our farm flocks. Our success in eradicating tuberculosis from cattle and the necessity of protecting this work from tuberculosis infection prompted a study of ways and means to suppress and eradicate avian tuberculosis.

## Young Birds Susceptible

Young birds are highly susceptible to tuberculosis infection and become affected through association with old birds in which the disease has developed. The disease in young birds may be largely prevented by keeping growing and laying flocks separate. The U. S. Bureau of Animal Industry recommends, to protect young birds from tuberculosis contamination by the old ones, to adopt the practice of annually replacing the poultry flock with day-old chicks reared in clean and sanitary environment. This, in our experience, will have a noticeable effect, and, where systematically and regularly followed from year to year, should eventually effect eradication.

## "Give the Old Hen a Ride"

"Give the Old Hen a Ride" has been the slogan and it should continue to be in raising poultry within flocks to which it can be applied. Such flocks include any used for commercial egg and poultry meat production, and the adoption of such management will have an economic advantage.

When seeking to secure adoption of the recommendation to get rid of old birds annually, it was found a difficult and often impossible task. But convinced of the potential sanitary value for suppressing tuberculosis among poultry, those assigned studied the situation more intently. The pitfalls and difficulties experienced with chicks for replacement were observed to be the more potent cause for failure to secure adoption of the practice.

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(U. S. Egg and Poultry Magazine, August 1942)

In any poultry producing state, commercial hatcheries are operated to supply replacement stock; the hen for hatching has practically disappeared. Day-old chicks from commercial hatcheries are a necessary commodity for perpetuating the poultry flocks. Chicks of high livability are essential if the practice of the annual replacement of flocks is to be accepted to an extent necessary and worthwhile for combating tuberculosis among poultry. This conclusion is reached after listening to the frequent objections of poultry raisers against the practice recommended. Such objections, it seems, are most often based upon difficulties encountered with day-old chicks purchased.

## Dual Testing Plan

It is without contradiction that pullorum disease infection has been the more common cause of death losses among chicks during the early days following hatching. The immediate concern was of ways and means to improve this situation. It led to contact with hatchery operators and the devising of a plan for testing all poultry flocks supplying eggs to the given hatchery. Such testing included tests for pullorum disease and also for tuberculosis. While it was recognized that pullorum disease was a most active factor in creating losses among day-old chicks, it was kept in mind that primarily the project was for tuberculosis eradication. Our later experiences have justified the requirement of having the tuberculin test included.

The plan has been closely adhered to, and the results obtained have been gratifying. Progress to make the plan more effective and extending its application over a larger field have moved rather slowly. This has not come from a lack of interest of those served or failure to note its value but in some degree to the reluctance of hatchery operators receiving benefits from the service to encourage competitors to embrace the plan. However, it is sufficient to say that the plan as it now operates has proved worthwhile and is recognized by cooperating hatchery operators as having a distinct value to their business.

## Hatchery Agreement

In extending the plan to a given hatchery, it is first required that the hatchery operator sign an agreement. The agreement reads essentially as follows.

> 1. I will not use or allow to be used for hatching any eggs that are not produced by hens which have passed a negative test for pullorum disease and avian tuberculosis approved by the Michigan Bureau of Animal Industry, such tests to be conducted during the last quarter of the year preceding the hatchery season; and that a negative record of pullorum test and tuberculin test, acceptable to the Michigan Bureau

> of Animal Industry, shall be furnished on all breeding stock brought on the hatchery premises or added to any flocks producing eggs for the hatchery.
>
> 2. All reacting fowls shall be removed at once from such flocks as produce eggs for my hatchery and slaughtered, and the premises where the producing fowls are to remain will be cleaned and disinfected. All fowls which are shown to be negative to the test will be identified by proper leg bands.
>
> 3. I will conduct my hatchery in compliance with reasonable recommendations for the control of infectious disease, removing egg shells and other refuse from the incubators and hatchery buildings to a point outside the hatchery buildings and disposing of such material in a manner that will prevent contamination of the hatchery buildings or premises.

Under the plan, no attempt has been made to establish a comprehensive control and eradication program for pullorum disease. Certification or accreditation of flocks as disease-free is not undertaken. The one objective is the elimination from the flocks supplying hatching eggs of all birds proved positive to test for pullorum disease at a certain time when it may have a distinct effect upon the hatch. A single yearly test has been found very effective, but, where desired by the hatchery, it may be arranged to have subsequent and more frequent pullorum tests applied.

All tests are required to be made by a qualified accredited veterinarian. The requirement of tuberculin tests of hatchery supply flocks has at times been questioned by some who have reviewed the plan, but we have been for continued use of this test on such flocks. Aside from a question as to spread of infection through eggs, the results of the yearly test for tuberculosis, with immediate removal of reactors, has been observed to favorably affect the health status of the flock. This has been distinctly noticed where extensive infection has been found in the flock. Elimination of tuberculosis from such flocks has shown marked improvement in productivity and hatchability. We have had some of this class of flocks in which the improvement could readily be measured by comparative analysis.

### Supervisory Inspections

Another part of the plan provides for supervisory inspection of flocks following the testing. These inspections comprise at least two visits to each flock by the state or federal veterinarians assigned to the work. The sanitary surroundings of the flock and the equipment used are noted, and recommendations for needed improvement are made to the owner. Arrangements are made for tuberculin testing breeding swine, if any are kept. This service is optional to the owner. More frequent inspections are made of the hatchery premises and its operation. Sanitary and other measures that will assure production of more healthy chicks are required. A hatchery operating under this supervision can use only eggs from flocks tested as provided under the agreement and it may not handle chicks from other sources except from such origin.

### Working Arrangements

The method employed in operating under the agreement, the tests as applied, and the costs involved are matters of detail that may be of special interest. The plan operates on a strictly voluntary basis under terms of an agreement signed yearly by the operator of the hatchery and the state. The tests required are conducted by accredited veterinarians only, the hatchery operator naming a veterinarian of his choice, but who must be approved by the state veterinarian before becoming engaged in testing under the agreement. The rapid whole-blood test for pullorum disease and the intradermic tuberculin test for tuberculosis are used. In preparation for pullorum testing, veterinarians have been instructed by the state extension veterinarian. Schools of instruction held for this purpose have been very well attended. The state and federal supervision has closely followed the field work of the different veterinarians to assure compliance with all details.

The two tests are applied at the same time, and at present the cost of these is fixed at 3 cents per bird. Of this cost, the hatchery operator pays 1½ cents for the pullorum test and the state pays 1½ cents for the tuberculin test. The fees in each instance are paid direct to the veterinarian applying the tests. The antigen used in the pullorum testing and all help required to handle the birds in making the tests are supplied by the hatchery operator. Leg bands for identifying individual birds and the tuberculin from the U. S. Bureau of Animal Industry are supplied through the state. The veterinarian applying the test is required to give only his services and quite often is furnished transportation without cost.

### Equipment and Procedure

The veterinarian working at this seemingly low cost of test has derived satisfactory returns for his time and effort. This has been possible because of the nature of the work and further because of some special equipment devised and perfected in the course of developing the plan. The equipment is a table for use in restraint of birds at the time of bleeding for the pullorum test and injection of tuberculin. The tables are used in series; three separate units each for the restraint of eight birds at one time are recommended. It is possible by this aid to handle as many as 240 birds per hour with two helpers for placing and removing the birds. Under a normal run of testing, from 150 to 180 birds per hour can be handled without confusion or rush. Tables for this purpose are, in some instances, provided by the hatchery operator; in others, the veterinarian has these as a part of his equipment.

This hatchery supervision plan was started in Michigan with a single hatchery in 1932. The arrangement for the veterinary service has varied at different times, but the requirements for veterinarians to make the test have been adhered to throughout. In the commencement of the work the hatchery paid this entire cost. Later the service was provided direct through the state and federal cooperation. The present arrangement has applied for the past three years and seems to be the most satisfactory. It permits a more extended service from use of public funds and of the facilities available.

There is a relation of avian tuberculosis to the general scheme of animal tuberculosis eradication which has been referred to and which we believe justifies the use of funds provided to eradicate tuberculosis of livestock along lines specified in this plan. The cost of handling the number under supervision has been very nominal.

## *Turkey Hatches Affected by High Altitude*

A survey conducted by Mack O. North, poultry head at the University of Wyoming, among hatcherymen in the high altitude sections of Montana, Utah, Colorado, Wyoming and Western Nebraska, indicated serious difficulties in obtaining good hatches of turkey eggs when the altitude exceeded 4,000 feet.

The weighted average of hatching percentages reported in his study ran as follows:

Altitude from 3,000 to 4,000 feet —60.1 Per Cent Hatch.

Altitude from 4,000 to 5,000 feet —49.8 Per Cent Hatch.

Altitude from 5,000 to 6,000 feet —45.4 Per Cent Hatch.

Altitude from 6,000 to 7,000 feet —41.0 Per Cent Hatch.

Altitude from 7,000 to 8,000 feet —39.8 Per Cent Hatch.

A number of the hatcheries reported that comparisons of hatches of eggs from the same sources set in similar equipment at different altitudes showed as much as 35 per cent fewer poults in the high altitude locations.

Various combinations of temperature, humidity, and ventilation were reported by different hatcheries, but no one appeared to have the right combination for insuring good hatches in the high altitude sections.

—Smith's Chickagrams, August 1942.

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# Diary of a Poultryman

By **PERCY S. WHITE**
Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**Sept. 1**—Labor Day, and we tried to make it a holiday for ourselves as far as possible. Everyone was away from the ranch except the immediate family. Donnie and I did the essential work, which did not take all the time. During his spare time, Donnie caught up on a few of his personal projects.

**Sept. 2**—Donnie has started back to school, which means that we will have to revise our work schedule. It will take a few days to naturally gravitate into a division of labor. The range hoppers need to be filled only once a day, and I think he will have time to do that after school. I can do the watering, as usual, after dinner.

**Sept. 4**—There is one pullet out on the range that should have been on today's live poultry auction. I think I will go crazy almost any day, but this bird has me beat a mile. She has already gone crazy. Her habits, eating, drinking, and dusting, are normal, but when the least bit excited she runs around in circles, backs off, and shakes her head roguishly. Then she tries to walk a chalk line like a drunken person, falls down, staggers off, and sometimes tries to crow about it.

**Sept. 5**—The egg room has been given a thorough cleaning, from ceiling to floor. All cob webs have been brushed down and the floor scrubbed with hot water and soap suds. The 30 gallon hot water tank was drained of its hot water in flushing the floor and drain.

Kid White had a new burlap side covering for the egg cooler and it was installed. The covering was made of seven burlap oyster shell bags that had been run through the washing machine. They were then dipped in a solution of 1 ounce of bluestone to a gallon of water and wrung lightly. This was followed by dipping in another solution of ½ pound of washing soda to the gallon of water. Molds will never grow on a burlap wick, and that is what this covering is, when so treated.

**Sept. 6** — Saturday, and it seems like old times to have Donnie at home. Even though the rush of the work is over, there is still plenty to do. There are a few weeds sticking

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around that will go to seed if not cut.

From past experience, I know if weeds are not allowed to go to seed the grass will come in and eventually smother out the weeds. This was true with the pasture and range, both of which used to be full of weeds.

**Sept. 9**—Uncle Ezra Stanley from Wabash, Indiana, is here, visiting us for a few weeks. Last March, at the age of 85, he came out second best in a "rassling" match with a fat hog, breaking his hip in the bout. Several weeks ago he threw away his crutches and now uses only a light cane. He attributes his almost miraculous recovery to the fact that he has always lived the simple Quaker life.

**Sept. 13**—Neighbor Ralph Howman mowed the pasture a few days ago. Probably I should say that he clipped it, to be scientifically correct. Anyway, the idea was to cut the weeds before they went to seed, thereby giving the grass more of a chance to grow and spread. He also mowed the driveway back to the range and part of the range itself. This was the second cutting for this section of the ranch.

**Sept. 15**—The little truck has been getting harder and harder to start, so I figured that the best thing to do would be take it to an expert on ignition. Tomorrow is egg day and I don't want to be sitting along the side of the road in the hot sun. After tinkering around with a screw driver and wrench, loosening this and tightening that, cocking one ear at the motor and squinting at the distributor, the expert pronounced the truck in good running order. So my troubles are over, for the time being at least.

**Sept. 16**—This young stock gets on my nerves. As long as they have plenty of water, they don't care if they drink or not, but just as soon as the fountains run dry, then the whole bunch gangs up as if they had not had a drop to drink in their lives.

Two of the fountains were dry because I was a little late getting home from town. I suppose Ralph Treat and I conferred too lengthily. As soon as I approached the range, I saw at a glance what was wrong and the two dry fountains received immediate attention. The peculiar part was that all the other fountains contained plenty of water. Why didn't the birds patronize another fountain?

**Sept. 17** — Last night the little truck stood out doors all night for the first time in its life. After the motor stopped running, it was impossible to get it started again, and it was too far to the garage to push it. But this morning the motor kicked off at the first attempt. And right there was when I struck while the motor was hot; I skedaddled down the road to Jeromeville—to a garage where there were good, all-round mechanics, not self-styled experts by any means. As I poured my tale of woe into the mechanics ear, his smile widened, culminating in a wild hyena-like horse laugh. Then he put on a new coil. An expert often gets so deep in the woods that he can't see the trees.

**Sept. 18** — One of our special at-the-door customers just delights in double yolk eggs. I think he prides himself on the fact that he has two eggs for breakfast each day. He might be fooling himself when he has two double eggs, but he is not fooling me; he is really eating four eggs. His "Bavarian goiter" indicates that he is exceptionally well fed. He gleefully selects his double egg with the pride of a chef, invariably picking the largest ones.

**Sept. 20**—The young stock is looking good to me, developing eggy-looking characteristics. I would say that the more eggy looks a bird can command the greater the chances for a full egg basket this winter. That is one thing above all others that I am in need of — a full egg basket, and many of them.

**Sept. 22**—One of the roosts in No. 2 brooder house broke last night. I have known for quite some time that this perch was cracked, but figured that it would last for the season. It will not be necessary to replace it; there are enough without it. This piece of timber will not be a total loss, in fact there will be no loss at all. It has been cleaned and stored overhead for future use; what for I don't know, but I do know that it will be used. A 2 by 2 stick has many uses around this ranch.

**Sept. 24** — There is something brewing in the air; some changes are going to be made. The livestock is acting different, although I am frank to admit that I can't tell exactly how different they are acting. I can sense something myself, for the air is heavy and at a dead calm.

**Sept. 25**—Well, it came, and will long be known in this neck of the woods as the day of the Big Wind. I don't think I have ever experienced such a high wind. I have seen no figures on the velocity, but it was of hurricane proportions. A hickory tree at least 24 inches in diameter was broken off, I would judge 20 feet above the ground. Several other smaller ones, oak and maple, were entirely uprooted. No roofs were damaged, but six sash were blown out for a total of 10 panes of glass. All this is the damage to date, 9 p.m. If the wind doesn't fall t'wixt now and sun-up, there will probably be more. I carry insurance on the buildings for just this sort of thing.

**Sept. 26** — Fortunately, there was no loss of life among the young stock from yesterday's wind storm, which stopped during the night. This morning the air was as quiet as a tomb. I phoned Mrs. Tice at the insurance office and reported the damage. The broken sash are at the Curry Lumber Co. being repaired, at no expense to me. This is one way I have of reaping the reward of paying insurance over a long period of time. If I could figure out a scheme whereby I could carry insurance only during a storm, I would be sitting Jake.

**Sept. 27** — The broken sash have been repaired and replaced in the houses. They were delivered this morning. Window sash seem to have the greatest depreciation and upkeep cost of any single item on the ranch with the exception of galvanized tanks for the water fountains. The sash rot out and the troughs pit out, and I am out any way the game is played. Interest on the investment, depreciation, maintainence, taxation, and insurance are items of no mean importance even in the chicken business, that nice little place out in the country.

**Sept. 30** — The last day of the month, and pullet moving time is just around the corner. So is tomorrow's flood of bills. I suppose they will come in tomorrow; they usually do on the first of the month.

A few of the pullets are laying, pullet eggs, of course. This is one fault with pullets, for they will lay small eggs, for a while at least. The call of the wild appears to be rather strong among some of them, for they want to sneak off into the weeds and grass to lay. Naturally, the eggs get stained, some of them to the extent that it is well nigh impossible to get them clean. Then I hear from Kid White in no uncertain terms.

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## *Lime from Egg Shells*

As a result of the increased egg drying operations throughout the Middle West, farmers in that area are arranging with egg drying plants to supply them with egg shells which are pulverized and spread on the land in place of lime. The extent of the source of such materials can be appreciated, when it is realized that many of these drying plants utilize upward from two freight cars of eggs every working day in the week.

—J. W. Kinghorne, American Poultry Journal, September 1942.

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# VIEWS OF THE EDITORS

### Orchids for Poultry Raisers!

For a long time it has been known that the mind of mortal man responds to praise. Our government leaders recognize the worthwhileness of this old axiom, too. At the recent International Baby Chick Association Convention in Grand Rapids, this "orchid" came from Roy F. Hendrickson, administrator, Agricultural Marketing Administration:

> "No other branch of agriculture has done more than the poultry industry in the way of producing food. Since the Food for Freedom program went into effect, egg production records have been broken consistently month after month."

Prior to the baby chick association convention, we had some correspondence with friends in the Department of Agriculture. In some of our letters we inquired what the Department of Agriculture might want to say to poultry raisers. In answer to that query, a letter came from Grover B. Hill, acting secretary, Department of Agriculture, containing the following comment:

> "All elements in the poultry industry have worked effectively together to meet the nation's poultry and egg goals for 1942. An exceptionally good job has been done, in the face of many difficulties, by poultry, egg, and chick producers. Wartime necessity has provided them with the greatest market in our history. New outlets for eggs have been developed through a program of expanding egg drying facilities, begun in 1941. Egg drying capacity approaching 300 million pounds has been reached. More than 80 egg drying plants, largely in the Mississippi Valley area, are in operation. What the poultry industry has accomplished in the past year has strengthened it for greater and more efficient production in 1943.
>
> "I want to compliment the leadership of the poultry industry and poultry producers themselves on the contribution which they have made to winning the war."

Can we continue to wear orchids in 1943? It appears there will be a big challenge for us. In his I.B.C.A. speech, Hendrickson said, "It is my personal feeling that the 1943 egg goal will probably be somewhat larger than that for this year. It seems just good sense and mighty good freedom insurance to produce a little too much rather than a lot too little."

We will all agree with Mr. Hendrickson, won't we? Keep your sleeves rolled up, American poultry raisers.

—O. A. Hanke, Poultry Tribune, September, 1942.

## Meat Shortage Aids Poultry

During the past month, folks in many localities over the country had the experience of going into their butcher shops and being unable to get many cuts of beef and pork. Actually, beef and pork production is ahead of a year ago, but purchases for the Army and for shipment to England and Russia have been extremely heavy. In fact, the government has been taking 40 per cent of the pork supplies.

One effect will be that chicken will be served more frequently in many homes. Secretary of Agriculture Claude R. Wickard has suggested chicken instead of beefsteak, pointing out that there are more chickens than ever before – 15 per cent more than a year ago.

Expansion of the poultry business during the past year and a half was brought about by the need for eggs to be shipped abroad. Some of the increase came through more efficient practices, but most of it had to come through an increase in number of chickens. It looked as though we would have a surplus of poultry meats to deal with, but evidently the situation on other meats will take care of it.

—Everybodys Poultry Magazine, September 1942.

## Number Eleven

When McNutt's Man-Power Commission ranked Poultry as the No. 11 industry for winning the war, they did more to dignify the chicken business than anything that has happened in this generation. It was somewhat belated recognition of the importance of the egg-and-milk team in all successful human efforts, especially war.

We're getting down to bare necessities, and the plain truth is that we need more food like milk and eggs in American stomachs. Why it took a war to bring this home to our government, is hard to understand.

This is no time to be-labor a hard-working government to spend more money on any industry, but it won't hurt to point out an obvious fact, so that when there is a revamping of things in the Department of Agriculture, poultry can take its proper place.

Everyone knows that the emphasis in Washington for years has been on "weak-sister" crops; which is to say that they were not adjusting production to demand in a regular way and were crying for help because of the tough spot they were in.

And in our schools, colleges, and popular magazines, the big advertisers of new-fangled foods generally got the play and eggs were neglected as lacking glamor. Some of these same foods had little to recommend them except that they required milk, sugar, or eggs as traveling companions before they were palatable.

Today we see top-flight advertisers like Hormel and Heinz (to mention only a few) and stores like A & P, and magazines like Life, featuring eggs and poultry. More are falling in line because poultry and eggs are in the limelight in the National Nutrition Program. Now we are ranked next to Iron and Steel—and the first food industry—in the Victory program. Here's the statement:

### A Significant Listing

A recent ranking of the importance of various industries to the war effort, made by War Man-Power Commission, of which Paul V. McNutt is the head, placed poultry and dairy farming eleventh. This is especially significant, since it recognizes the prime importance of poultry and eggs as food in comparison with other foods. The rankings, as made by the Commission, follow.

1. Aircraft
2. Ship building
3. Ordnance and accessories
4. Ammunition
5. Fire arms
6. Explosives
7. Power boilers
8. Scientific instruments
9. Wood distillation
10. Iron and steel
11. Poultry and dairy farming
12. Sugar beets
13. Food processing

With this great expansion under way, with labor on the poultry farm deferred (in most cases) from the draft, and with our prices fairly safe, but with the threat of rapid changes, we should have a business manager in Washington to look after things. He should be hired by the industry, and while his work is outside the Department of Agriculture, he should know about how the USDA "ticks." He should be keen; popular in the industry and the government; with a two-fisted courage to fight things through when necessary.

The No. 11 industry may be neglecting a patriotic duty if it does not put a No. 1 man in Washington these strenuous and fast-moving war days.

—Sam Althouse, American Poultry Journal, September 1942.

## Sound Approach Needed

Viewing the tremendous increases in the country's pack of dried eggs for lend-lease and other war needs, some of the far-seeing leaders in, and observers of, the egg field are already speculating as to what influence this product will have upon present established shell egg markets and prices after the war. Unquestionably, for some time after hostilities have ended, there will be a most substantial demand for dried eggs to bolster the diets of millions of half-starved or undernourished peoples in foreign lands. But just how long such markets might exist is anyone's conjecture at present. As time goes on, however, foreign farm flocks will eventually be replenished, and those markets will tend increasingly to be supplied with eggs of their own production.

Egg driers in this country who have made substantial investments in plants and equipment and have developed highly technical and trained organizations naturally will make strenuous efforts to expand the home consumer acceptance of dried eggs for use in the family kitchen. This highly reasonable probability would result in a perpetuation of the recent and present keen intra-industry competition between the driers and the shell egg elements. Wider usage of the dried product automatically would affect adversely the sale and consumption of eggs in the shell.

Fortunately, however, those organizations and agencies whose operations are keyed to the handling of shell eggs exclusively may find solace in the fact that dried eggs do not lend themselves to the wide variety of uses possible for shell eggs. For boiling, poaching, and frying with the "sunny side up," shell eggs occupy a position that the keenest dried egg competition could not assail. In the preparation of scrambled eggs, omelets, custards, and other dishes where eggs are required, the dried egg product may find a place of economic importance.

There should be no cause for alarm in possible future dried egg marketing developments. According to food nutritionists, the per capita consumption of eggs may well be substantially increased in the many-sided efforts to obtain a general adequate healthful diet. Shell egg and dried egg interests, with this thought in mind, should, therefore work cooperatively toward educational programs, rather than devote their energies to promotion of lines of cleavage and unsound competition within a field which must remain unified and actively conscious of the common welfare of all egg and poultry elements if its movement toward proper expansion is to be achieved.

—American Egg and Poultry Review, August 1942.

### It May Be Worse Before It's Better

There is no use denying the fact that the situation on poultry equipment is bad. Those who attended the chick convention at Grand Rapids are aware that no incubators were on display, and that the offerings of brooders, batteries, feeders, fountains, and any other items made of metal were very limited.

If one attempted to buy any items that contain steel, or other essential metals, his order probably was booked subject to the seller being allotted the necessary materials for manufacturing the items wanted.

Allotments of materials for the manufacture of poultry equipment for next season have not yet been announced, and this in itself is bad for the industry, because these finished supplies need to be in the hands of dealers and (or) users soon after January 1, and no manufacturer can tell how to plan either his sales or his manufacturing program until he knows what materials may be available.

Latest government proposals indicate that materials will be distributed on a quarterly basis instead of in a lump sum, and this may mean that a lot less poultry equipment will be ready for next season than would be the case if the manufacturers could stock up on their quota of materials for the season as soon as final decision is reached on how much will be made available for the next year.

—T. S. Townsley, Smith's Chickagrams, August 1942.

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## *Pays to Keep 'Em Fed*

Things began to happen when the examination of young men for the army pointed to inadequate diet as the cause of numerous "rejects." In double-quick time, a national nutrition campaign was launched.

Wouldn't it be a good thing for everybody if poultry could be better fed, too? Anything less than full feeding under the best of conditions lowers the flockowner's profits and reduces the amount of production of eggs for use at home and abroad.

Out of Missouri comes evidence in the affirmative. It concerns 16 pullets hatched in spring at the same time, from the same breeding flock. Half of the pullets were fully fed to 24 weeks, at which time they were mature. The other eight were underfed. In that time the fully-fed pullets ate 16 pounds more feed than the less fortunate feathered biddies.

The fully-fed birds began to lay in their sixth month and made money. The under-fed bird did not lay until spring. They finally ate more than the 16 pounds of feed they should have had, but they were never profitable. The time they lost and the profits they missed were never regained.

The difference in feed cost up to 24 weeks was 33 cents a pullet. The difference in live weight would have paid for the feed.

—Everybodys Poultry Magazine, September 1942.

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☛ NEAR CHRISMAN, Virginia, a low flying airplane so frightened a flock of turkeys that 139 were smothered before the owner could scatter them from their huddle.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

### July Egg Production

| State and Division | Number of layers on hand during July 1941 | 1942 | Eggs per 100 layers 1941 | 1942 | Total eggs produced During July 1941 | 1942 | Jan. to July incl. 1941 | 1942 |
|---|---|---|---|---|---|---|---|---|
| | Thousands | | Number | | Millions | | | |
| Me. | 1,426 | 1,503 | 1,674 | 1,699 | 24 | 26 | 188 | 204 |
| N. H. | 1,183 | 1,263 | 1,569 | 1,544 | 19 | 20 | 148 | 163 |
| Vt. | 651 | 709 | 1,699 | 1,637 | 11 | 12 | 80 | 91 |
| Mass. | 3,034 | 3,186 | 1,547 | 1,575 | 47 | 50 | 386 | 412 |
| R. I. | 364 | 345 | 1,519 | 1,683 | 6 | 6 | 46 | 47 |
| Conn. | 1,988 | 2,139 | 1,556 | 1,612 | 31 | 34 | 237 | 256 |
| N. Y. | 9,962 | 10,363 | 1,562 | 1,562 | 156 | 162 | 1,204 | 1,241 |
| N. J. | 4,190 | 4,718 | 1,488 | 1,432 | 62 | 68 | 539 | 587 |
| Pa. | 11,783 | 12,900 | 1,507 | 1,482 | 178 | 191 | 1,433 | 1,598 |
| N. Atl. | 34,581 | 37,126 | 1,544 | 1,533 | 534 | 569 | 4,261 | 4,595 |
| Ohio | 13,693 | 14,278 | 1,482 | 1,488 | 203 | 212 | 1,581 | 1,715 |
| Ind. | 8,613 | 9,684 | 1,469 | 1,466 | 127 | 142 | 1,049 | 1,188 |
| Ill. | 13,010 | 14,405 | 1,311 | 1,330 | 171 | 192 | 1,412 | 1,623 |
| Mich. | 7,556 | 8,024 | 1,513 | 1,507 | 114 | 121 | 921 | 973 |
| Wis. | 10,468 | 11,693 | 1,507 | 1,538 | 158 | 180 | 1,176 | 1,367 |
| E. N. Cent. | 53,340 | 58,084 | 1,449 | 1,458 | 773 | 847 | 6,139 | 6,866 |
| Minn. | 13,653 | 16,064 | 1,451 | 1,522 | 198 | 244 | 1,548 | 1,934 |
| Iowa | 19,489 | 22,726 | 1,330 | 1,389 | 259 | 316 | 2,103 | 2,578 |
| Mo. | 13,417 | 15,578 | 1,358 | 1,376 | 182 | 214 | 1,534 | 1,809 |
| N. Dak. | 2,896 | 3,422 | 1,414 | 1,426 | 41 | 49 | 285 | 374 |
| S. Dak. | 4,562 | 5,580 | 1,330 | 1,417 | 61 | 79 | 459 | 624 |
| Nebr. | 7,474 | 9,467 | 1,469 | 1,451 | 110 | 137 | 892 | 1,144 |
| Kans. | 9,520 | 11,272 | 1,401 | 1,389 | 133 | 157 | 1,099 | 1,367 |
| W. N. Cent. | 71,011 | 84,109 | 1,386 | 1,422 | 984 | 1,196 | 7,920 | 9,830 |
| Del. | 663 | 693 | 1,454 | 1,432 | 10 | 10 | 80 | 84 |
| Md. | 2,264 | 2,532 | 1,370 | 1,376 | 31 | 35 | 250 | 276 |
| Va. | 5,216 | 6,266 | 1,296 | 1,286 | 68 | 81 | 578 | 675 |
| W. Va. | 2,490 | 2,922 | 1,435 | 1,500 | 36 | 44 | 281 | 332 |
| N. C. | 5,204 | 6,321 | 1,175 | 1,156 | 61 | 73 | 507 | 609 |
| S. C. | 2,257 | 2,468 | 1,054 | 1,042 | 24 | 26 | 191 | 216 |
| Ga. | 4,244 | 5,332 | 1,060 | 1,085 | 45 | 58 | 369 | 449 |
| Fla. | 1,333 | 1,474 | 1,203 | 1,246 | 16 | 18 | 138 | 151 |
| S. Atl. | 23,671 | 28,008 | 1,229 | 1,232 | 291 | 345 | 2,394 | 2,783 |
| Ky. | 5,148 | 6,658 | 1,380 | 1,327 | 71 | 88 | 602 | 779 |
| Tenn. | 5,550 | 6,596 | 1,234 | 1,228 | 68 | 81 | 559 | 662 |
| Ala. | 4,126 | 4,859 | 1,187 | 1,178 | 49 | 57 | 369 | 455 |
| Miss. | 4,296 | 5,172 | 995 | 992 | 43 | 51 | 340 | 409 |
| Ark. | 4,841 | 5,491 | 1,166 | 1,125 | 56 | 62 | 432 | 514 |
| La. | 2,820 | 3,231 | 973 | 911 | 27 | 29 | 223 | 255 |
| Okla. | 6,870 | 8,301 | 1,345 | 1,271 | 92 | 106 | 770 | 950 |
| Tex. | 17,253 | 20,088 | 1,256 | 1,252 | 217 | 252 | 1,746 | 1,986 |
| S. Cent. | 50,909 | 60,396 | 1,224 | 1,202 | 623 | 726 | 5,041 | 6,010 |
| Mont. | 1,353 | 1,415 | 1,457 | 1,438 | 20 | 20 | 145 | 164 |
| Idaho | 1,461 | 1,631 | 1,500 | 1,510 | 22 | 25 | 169 | 184 |
| Colo. | 2,088 | 2,575 | 1,432 | 1,445 | 30 | 37 | 228 | 276 |
| Utah | 1,556 | 1,674 | 1,618 | 1,631 | 25 | 27 | 187 | 203 |
| Wash. | 4,566 | 4,670 | 1,600 | 1,572 | 73 | 73 | 575 | 580 |
| Oreg. | 2,502 | 2,499 | 1,531 | 1,624 | 38 | 41 | 294 | 313 |
| Calif. | 10,121 | 10,930 | 1,392 | 1,451 | 141 | 159 | 1,137 | 1,262 |
| West. | 25,411 | 27,346 | 1,472 | 1,496 | 374 | 409 | 2,930 | 3,198 |
| U. S. | 258,923 | 295,069 | 1,382 | 1,387 | 3,579 | 4,092 | 28,685 | 33,282 |

Hens and pullets on farms laid 4,092,000,000 eggs in July, a record high production for the month—14 per cent above July last year and 28 per cent above the 10-year (1931-40) average. A record high July production was reached in all parts of the country except the Western states, where the production was 10 per cent less than the record of July 1931. The total egg production during the first 7 months of this year was also the largest of

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chickens raised, because culling is usually more drastic with a large than a small crop. Judging from the experience of past years, a 10 per cent increase in chickens raised and a 11 per cent increase in pullets not yet of laying age on August 1 would indicate an increase of from 6 to 8 per cent in the number of layers on January 1, 1943 compared with a year earlier.

## Receipts of Eggs and Poultry

Country plant marketings in the Central West continue to run around 50 per cent above last season, despite fairly heavy seasonal reductions. A similar situation also prevails on the Pacific Coast, although the increase over 1941 in that area is only about 25 per cent. Combined receipts at the four Eastern markets, which were 17 per cent below last year in July, have been exceeding those of a year ago since August 1. This is due entirely to

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

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National Poultry Digest

HANOVER,

PENNA.

| | | | | | | | | |
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| [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] | [illegible] |
| W. Va. | 2,490 | 2,922 | 1,435 | 1,500 | 36 | 44 | 281 | 332 |
| N. C. | 5,204 | 6,321 | 1,175 | 1,156 | 61 | 73 | 507 | 600 |
| S. C. | 2,257 | 2,468 | 1,054 | 1,042 | 24 | 26 | 191 | 216 |
| Ga. | 4,244 | 5,332 | 1,060 | 1,085 | 45 | 58 | 369 | 449 |
| Fla. | 1,333 | 1,474 | 1,203 | 1,246 | 16 | 18 | 138 | 151 |
| S. Atl. | 23,671 | 28,008 | 1,229 | 1,232 | 291 | 345 | 2,394 | 2,783 |
| Ky. | 5,148 | 6,658 | 1,380 | 1,327 | 71 | 88 | 602 | 779 |
| Tenn. | 5,550 | 6,596 | 1,234 | 1,228 | 68 | 81 | 559 | 662 |
| Ala. | 4,126 | 4,859 | 1,187 | 1,178 | 49 | 57 | 369 | 455 |
| Miss. | 4,296 | 5,172 | 995 | 992 | 43 | 51 | 340 | 409 |
| Ark. | 4,841 | 5,491 | 1,166 | 1,125 | 56 | 62 | 432 | 514 |
| La. | 2,820 | 3,231 | 973 | 911 | 27 | 29 | 223 | 255 |
| Okla. | 6,870 | 8,301 | 1,345 | 1,271 | 92 | 106 | 770 | 950 |
| Tex. | 17,253 | 20,088 | 1,256 | 1,252 | 217 | 252 | 1,746 | 1,986 |
| S. Cent. | 50,909 | 60,396 | 1,224 | 1,202 | 623 | 726 | 5,041 | 6,010 |
| Mont. | 1,353 | 1,415 | 1,457 | 1,438 | 20 | 20 | 145 | 164 |
| Idaho | 1,461 | 1,631 | 1,500 | 1,510 | 22 | 25 | 169 | 184 |
| Colo. | 2,088 | 2,575 | 1,432 | 1,445 | 30 | 37 | 228 | 276 |
| Utah | 1,556 | 1,674 | 1,618 | 1,631 | 25 | 27 | 187 | 203 |
| Wash. | 4,566 | 4,670 | 1,600 | 1,572 | 73 | 73 | 575 | 580 |
| Oreg. | 2,502 | 2,499 | 1,531 | 1,624 | 38 | 41 | 294 | 313 |
| Calif. | 10,121 | 10,930 | 1,392 | 1,451 | 141 | 159 | 1,137 | 1,262 |
| West. | 25,411 | 27,346 | 1,472 | 1,496 | 374 | 409 | 2,930 | 3,198 |
| U. S. | 258,923 | 295,069 | 1,382 | 1,387 | 3,579 | 4,092 | 28,685 | 33,282 |

Hens and pullets on farms laid 4,092,000,000 eggs in July, a record high production for the month—14 per cent above July last year and 28 per cent above the 10-year (1931-40) average. A record high July production was reached in all parts of the country except the Western states, where the production was 10 per cent less than the record of July 1931. The total egg production during the first 7 months of this year was also the largest of record for the period—16 per cent larger than in the same period last year and 26 per cent above the 10-year average.

The rate of egg production per layer during July set a new high peak for the month—13.9 eggs per layer compared with 13.8 eggs in July last year, the previous record high, and 12.7 eggs, the 10-year average. The production in farm flocks of 99.5 eggs per layer during the first 7 months of this year was a record high for the period, 2 per cent more than during the same period last year and 11 per cent above the 10-year average.

In farm flocks during July there was an average of 295,069,000 layers, the largest number of record for the month. This exceeds last July by 14 per cent and the 10-year average by 17 per cent. Increases above a year ago are shown in all parts of the country, ranging from 7 per cent in the North Atlantic states to 19 per cent in the South Central states.

The number of pullets not yet of laying age on August 1, available for later addition to the laying flock, was 11 per cent larger than a year ago and 32 per cent larger than on August 1, 1940, the low point of a 5-year record. The total number of chickens raised this year is estimated to be 10 per cent more than last year. With increasing numbers, the percentage increase of pullets retained for layers is generally less than the percentage increase of chickens raised, because culling is usually more drastic with a large than a small crop. Judging from the experience of past years, a 10 per cent increase in chickens raised and a 11 per cent increase in pullets not yet of laying age on August 1 would indicate an increase of from 6 to 8 per cent in the number of layers on January 1, 1943 compared with a year earlier.

## Receipts of Eggs and Poultry

Country plant marketings in the Central West continue to run around 50 per cent above last season, despite fairly heavy seasonal reductions. A similar situation also prevails on the Pacific Coast, although the increase over 1941 in that area is only about 25 per cent. Combined receipts at the four Eastern markets, which were 17 per cent below last year in July, have been exceeding those of a year ago since August 1. This is due entirely to the heavier movements to New York, Philadelphia, and Boston, for a Chicago receipts this month are less than those of a year ago.

Maarketings of poultry in the Central West have been exceptionally heavy the entire summer. During the week ending August 22, average receipts per plant were 35,000 pounds. This is almost a 50 per cent increase over a year ago, when the average was approximately 24,000 pounds. This season's weekly receipts since the middle of June have exceeded comparable periods of all previous years. At that time the weekly average was only 20,000 pounds. During the past few weeks, marketings of young stock have been greater than fowl, both in actual quantities and in relation to a year earlier. A recent Department report states that marketings of young stock will increase until October or November, and that supplies of chickens this fall will be the largest of record.

July receipts of dressed poultry at terminal markets were 14 per cent heavier than in 1941, and August receipts are 20 per cent heavier. August 1 stocks of frozen poultry were 79 million pounds, a decrease of about 2 million pounds under a year earlier, but 9 million pounds greater than the 1937-41 average for that date.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| August 1 | 24 | 32,843 | –1.5 | +40.9 |
| August 8 | 24 | 28,767 | +0.3 | +42.1 |
| August 15 | 24 | 35,756 | +0.8 | +32.5 |
| August 22 | 22 | 31,588 | +1.2 | +27.7 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| August 1 | 56 | 64,176 | 50,421 | –2.77 | +27.28 |
| August 8 | 56 | 61,405 | 49,680 | –4.06 | +23.60 |
| August 15 | 77 | 62,618 | 50,463 | +1.52 | +24.09 |
| August 22 | 55 | 59,272 | 48,637 | –1.09 | +21.87 |
| August 29 | 56 | 61,627 | 51,516 | –0.41 | +19.63 |

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1942 | Cases of Eggs 1941 | Cases of Eggs % Chg. | Pounds of Poultry (000 omitted) 1942 | Pounds of Poultry (000 omitted) 1941 | Pounds of Poultry (000 omitted) % Chg. | Pounds of Young Stock (000 omitted) 1942 | Pounds of Young Stock (000 omitted) 1941 | Pounds of Young Stock (000 omitted) % Chg. | Pounds of Fowl (000 omitted) 1942 | Pounds of Fowl (000 omitted) 1941 | Pounds of Fowl (000 omitted) % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Aug. 1 | 221,240 | 156,439 | +41.42 | 5,439 | 3,912 | +39.03 | 2,737 | 2,031 | +34.74 | 2,527 | 1,771 | +42.68 |
| Aug. 8 | 182,416 | 147,334 | +23.81 | 5,754 | 4,275 | +34.60 | 3,172 | 2,226 | +42.53 | 2,451 | 1,918 | +27.76 |
| Aug. 15 | 179,804 | 115,525 | +55.78 | 6,375 | 4,500 | +41.66 | 3,689 | 2,495 | +47.87 | 2,541 | 1,920 | +32.32 |
| Aug. 22 | 162,883 | 99,134 | +60.30 | 7,009 | 4,713 | +48.72 | 4,394 | 2,814 | +56.16 | 2,476 | 1,807 | +37.04 |
| Aug. 29 | 172,494 | 107,602 | +60.31 | 7,497 | 4,952 | +51.40 | 4,796 | 3,212 | +49.30 | 2,563 | 1,652 | +35.15 |

### Receipts of Eggs (cases) at 4 Markets*

| Geographic Section | July 1942 | July 1941 | July % change | Jan. to July, Inc., 1942 | Jan. to July, Inc., 1941 | Jan. to July, Inc., % change |
|---|---|---|---|---|---|---|
| New England | 54,509 | 25,663 | +112.4 | 541,544 | 322,031 | + 68.2 |
| Middle Atlantic | 217,586 | 160,625 | + 35.5 | 1,887,339 | 1,519,433 | + 24.2 |
| South Atlantic | 25,017 | 15,189 | + 64.7 | 275,683 | 165,557 | + 66.5 |
| East North Central | 257,243 | 200,243 | + 28.5 | 2,331,930 | 2,314,374 | + 0.8 |
| West North Central | 431,347 | 689,279 | – 37.4 | 4,158,816 | 5,231,390 | – 20.5 |
| South Central | 11,303 | 4,254 | +165.7 | 148,672 | 71,360 | +108.3 |
| Mountain | 25,884 | 132,510 | – 80.5 | 147,041 | 267,927 | – 45.1 |
| Pacific | 13,190 | 23,841 | – 44.7 | 66,031 | 74,660 | – 11.6 |
| Miscellaneous | 330 | 190 | + 73.7 | 2,602 | 2,664 | – 2.3 |
| TOTAL | 1,036,409 | 1,251,794 | – 17.2 | 9,559,658 | 9,969,396 | – 4.1 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| | | | | | | |
|---|---|---|---|---|---|---|
| New England | 767,448 | 1,403,958 | – 45.3 | 3,313,354 | 5,433,851 | – 39.0 |
| Middle Atlantic | 7,591,829 | 7,641,488 | – 0.6 | 32,538,337 | 33,261,977 | – 2.2 |
| South Atlantic | 7,227,936 | 3,860,460 | + 87.2 | 41,591,750 | 22,580,477 | + 84.2 |
| East North Central | 2,562,383 | 1,873,153 | + 36.8 | 16,635,480 | 18,453,964 | – 9.9 |
| West North Central | 11,701,316 | 9,760,351 | + 19.9 | 61,948,903 | 64,289,260 | – 3.6 |
| South Central | 1,276,305 | 2,271,384 | – 43.8 | 9,749,506 | 12,342,131 | – 21.0 |
| Mountain | 145,342 | 603,579 | – 75.9 | 3,397,004 | 3,102,083 | + 9.5 |
| Pacific | 733,899 | 922,043 | – 20.4 | 6,883,858 | 8,219,131 | – 16.2 |
| Miscellaneous | 0 | 0 | – | 0 | 0 | – |
| TOTAL | 32,006,458 | 28,336,416 | + 13.9 | 176,058,192 | 167,682,874 | + 5.0 |

*New York, Chicago, Philadelphia and Boston.

## Egg-Feed Ratios

### Chicago Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1942 | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1941 | Dozens of Eggs to Buy 100 lbs. of Laying Ration 10-Yr. Avg. 1931-40 | Price of Fresh Graded Firsts (Dollars) 1942 | Price of Fresh Graded Firsts (Dollars) 1941 | Cost of Ration per 100 lbs. (Dollars) 1942 | Cost of Ration per 100 lbs. (Dollars) 1941 |
|---|---|---|---|---|---|---|---|
| August 1 | 5.26 | 5.32 | 6.59 | .325 | .267 | 1.710 | 1.423 |
| August 8 | 5.14 | 5.47 | 6.64 | .332 | .267 | 1.712 | 1.464 |
| August 15 | 4.94 | 5.39 | 6.45 | .345 | .269 | 1.709 | 1.450 |
| August 22 | 4.82 | 5.24 | 6.25 | .350 | .280 | 1.686 | 1.467 |
| August 29 | 4.71 | 5.13 | 6.11 | .355 | .292 | 1.673 | 1.498 |

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1942 | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1941 | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1940 | Avg. Egg Price per Doz. (Dollars) 1942 | Avg. Egg Price per Doz. (Dollars) 1941 | Avg. Egg Price per Doz. (Dollars) 1940 | Avg. Feed Cost per 100 lbs. (Dollars) 1942 | Avg. Feed Cost per 100 lbs. (Dollars) 1941 | Avg. Feed Cost per 100 lbs. (Dollars) 1940 |
|---|---|---|---|---|---|---|---|---|---|
| August 6 | 6.3 | 6.8 | 8.6 | .386 | .330 | .220 | 2.45 | 2.23 | 1.88 |
| August 13 | 6.1 | 6.9 | 7.5 | .395 | .335 | .247 | 2.39 | 2.31 | 1.84 |
| August 20 | 5.9 | 6.9 | 7.3 | .403 | .337 | .252 | 2.38 | 2.31 | 1.84 |
| August 27 | 5.7 | 6.8 | 7.2 | .417 | .349 | .257 | 2.36 | 2.37 | 1.85 |

### Central California Egg-Feed Ratio

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration 1942 | 1941 | 1940 | 1939 | 1938 | 1937 |
|---|---|---|---|---|---|---|
| July | 6.63 | 6.71 | 7.54 | 7.36 | 6.28 | 8.91 |
| January-July | 7.45 | 7.34 | 9.39 | 7.65 | 7.82 | 9.80 |
| Year | | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 |

—Data Compiled by Dorothy B. Erdahl, University of California.

## Egg Prices

August egg markets have been firm, and prices generally have advanced at all points. This has been a seasonal trend, but has been fully supported this year by an active buying interest which has absorbed current production and drawn more or less heavily on storage reserves. Egg production has been unusually heavy for this time of the year, reaching a record high in July—14 per cent above July 1941 and 28 per cent above the 1931-40 July average.

Wholesale price advances during August were about 4 cents per dozen on better qualities, and somewhat less than this on other grades. Actual price changes varied in different markets. Mixed color eggs at New York, for example, were 2 cents higher on August 28 than at the beginning of the month, while nearby whites and best Pacific Coast eggs were 3 to 4 cents higher. U. S. Extras at San Francisco were 44½ cents, compared with 39½ cents on August 1. U. S. Standards at San Francisco, however, advanced only 2 cents. August prices for markets as a whole are likely to average fully 6 cents higher than the August averages of last year. Recent wholesale price advances have caused retail prices to go higher, but retail movements are reported to be holding up well nevertheless. According to press reports, there has been some widening of demand, probably due in part to higher costs of alternative foods, as well as improved purchasing power.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

**1942 Egg Prices at New York City**

| Kind | Aug. 7 | Aug. 14 | Aug. 21 | Aug. 28 | Aug. 28 '41 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 34¼ | 35½ | 36 | 36 | 30 |
| Wholesale Sales of Fancy and Extra Fancy White | 40-45 | 41½-46 | 42½-48½ | 43¼-49 | 37½-40 |
| White Specials | 39½ | 40½ | 41½ | 42¼ | 36½-37 |
| Pacific Coast | 44¾-45 | 45¾-46 | 47½-48 | 48¾-49 | 42-43 |
| Brown Specials | 39 | 40 | 40½-41 | 40½-41 | 35½ |

## Government Purchases

**Purchases of Eggs and Poultry Products by the USDA**

| Week Ending | Shell Eggs | Dried Eggs |
|---|---|---|
| | Cases | 1,000 lbs. |
| August 1 | | 2,564 |
| August 8 | 104 | 2,337 |
| August 15 | | 2,726 |
| August 22 | | 1,528 |
| August 29 | | 2,517 |
| 1942 Total to August 29 | 439,536 | 184,050 |

## Eggs in Storage

**Storage Holdings of Eggs**

| Kind | August 1 5-Yr. Avg. 1937-41 | Aug. 1 1941 | July 1 1942 | Aug. 1 1942 | % Change Aug. '41-Aug. '42 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| Shell Eggs (cases) | | | | | |
| SMA and FSCC | | 239 | 11 | 28 | − 88.3 |
| Commercial | 7,054 | 6,402 | 7,924 | 7,706 | + 20.3 |
| Total | 7,316 | 6,641 | 7,935 | 7,734 | + 14.9 |
| Frozen Eggs (lbs.) | | | | | |
| SMA and FSCC | | 1,770 | 4,941 | 4,941 | +179.1 |
| Commercial | 158,986 | 193,417 | 273,558 | 285,564 | + 47.6 |
| Total | 159,322 | 195,187 | 278,499 | 290,505 | + 48.8 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 4,249 | 5,205 | 7,427 | 7,747 | + 48.8 |
| Total (cases) | 11,565 | 11,846 | 15,362 | 15,481 | + 30.6 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

On August 1, storage stocks of eggs totaled 7,734,000 cases, representing an increase over August 1, 1941 of 1,093,000 cases. On the same date, 35 cities' stocks totaling 5,328,000 cases were 313,000 cases greater than a year earlier, indicating that the bulk of the excess holdings are stored at interior points rather than the principal storage centers. No figures are available for other than the 35 cities since August 1, but in these markets, the increase over a year earlier on August 22 was only 116,000 cases. A sizable portion of the eggs remaining in storage are ear-marked for drying in order to fill government contracts during the remainder of the year. Aside from this, total stocks of shell eggs the past two months are not excessive in the light of recent years reserves. The last 35 cities report showed that stocks in those markets were 7 per cent below average. The net August reduction has been twice as great as that which occurred last year.

The storage report for August 1 showed that total U. S. stocks of frozen eggs on that date were 290½ million pounds, but stated that 111½ million pounds of this total, as well as 2,890,000 cases of shell eggs, were reported by the owners as ear-marked for drying on government commitments. The net change in storage movements of frozen eggs in the 35 cities between August 1 and August 22 was a reduction of 5 million pounds, whereas during the corresponding period of last year stocks of this product were increased 4½ million pounds. August 1 stocks in the 35 cities were about 65 per cent of the total U. S. reserve.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Poultry Meat Prices

Further strength developed in live poultry markets during August, and prices are mostly higher than a month ago. Such changes reflect a generally good buying demand. Contributing to this, perhaps, are the shortages of competing meats reported in some places. Price increases are greatest on broilers, which are 10 to 14 cents higher than a year ago. Increases over last year on the heavier classes are only about 4 to 6 cents, varying in different markets.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Poultry in Storage

**Storage Holdings of Poultry**

| Kind | August 1 5-Yr. Avg. 1937-41 | Aug. 1 1941 | July 1 1942 | Aug. 1 1942 | % Change Aug. '41-Aug. '42 |
|---|---|---|---|---|---|
| | Thousand Pounds | | | | |
| Broilers | 6,922 | 6,874 | 3,582 | 5,502 | –20.0 |
| Fryers | 2,501 | 3,650 | 2,119 | 3,264 | –10.6 |
| Roasters | 6,100 | 9,361 | 5,089 | 4,934 | –47.3 |
| Fowls | 13,815 | 14,661 | 18,082 | 20,906 | +42.5 |
| Turkeys | 17,906 | 19,750 | 28,249 | 18,908 | – 4.3 |
| Ducks | 8,731 | 9,760 | 4,574 | 7,219 | –26.1 |
| Miscellaneous | 14,269 | 11,958 | 13,118 | 13,233 | +10.6 |
| Unclassified | | 5,192 | 4,387 | 5,199 | + 0.1 |
| Total | 70,244 | 81,206 | 79,200 | 79,165 | – 2.6 |

## Turkey Outlook

The number of turkeys raised this year will be 33,786,000, an increase of 1 per cent over last year, but 1 per cent less than the record crop of 1940, according to preliminary estimates just released by the U. S. Department of Agriculture. Producers' intentions last February indicated an 8 per cent increase in the turkey crop this year. However, cold wet weather and floods during the spring months, especially in the Midwest, resulted in low fertility and unusually heavy death losses of poults from blackhead and exposure. Difficulty in obtaining labor, the high cost of feed, and lack of brooding space reduced poult purchases and caused some producers to go out of the turkey business. As a result of these unfavorable conditions, the number of turkeys to be raised this year is much below earlier expectations.

Turkey marketings this year are expected to be earlier than in 1941, with 54.4 per cent of the crop intended to move in November or earlier, compared with 48.3 per cent last year. Marketings intended for October or earlier this year are 11.6 of the crop as against 8.5 per cent so marketed last year. Christmas and New Year's markets are expected to receive 35.3 per cent of the crop, compared with 38.9 per cent last year, and after holiday market 10.3 per cent, compared with 12.8 per cent last year.

**Indicated Number of Turkeys Raised in 1942 and Past Years**

| State and Division | Number Raised Average 1934-38 | 1939 | 1940 | 1941 | No. on Hand Aug. 1 1942 as % of 1941 | Indicated No. Raised in 1942 |
|---|---|---|---|---|---|---|
| | Thousands | | | | Per Cent | Thousands |
| Pa. | 593 | 753 | 828 | 927 | 110 | 1,020 |
| **N. Atl.** | **1,418** | **1,932** | **1,949** | **2,072** | **108.2** | **2,242** |
| Ohio | 651 | 777 | 948 | 815 | 110 | 896 |
| Mich. | 435 | 515 | 463 | 472 | 100 | 472 |
| **E. N. Cent.** | **2,105** | **2,631** | **2,892** | **2,737** | **105.7** | **2,892** |
| Minn. | 1,973 | 2,885 | 3,025 | 3,207 | 100 | 3,207 |
| Iowa | 1,087 | 1,766 | 1,713 | 1,782 | 97 | 1,729 |
| Mo. | 885 | 1,500 | 1,575 | 1,544 | 92 | 1,420 |
| N. Dak. | 1,348 | 1,606 | 1,670 | 1,453 | 105 | 1,526 |
| S. Dak. | 692 | 1,288 | 1,404 | 1,250 | 92 | 1,150 |
| Nebr. | 544 | 980 | 1,176 | 1,317 | 105 | 1,383 |
| Kans. | 642 | 1,370 | 1,205 | 1,157 | 92 | 1,064 |
| **W. N. Cent.** | **7,171** | **11,395** | **11,768** | **11,710** | **98.0** | **11,479** |
| Va. | 697 | 847 | 805 | 805 | 118 | 950 |
| **S. Atl.** | **2,104** | **2,143** | **2,187** | **2,169** | **112.3** | **2,435** |
| Ky. | 442 | 282 | 310 | 310 | 110 | 341 |
| Okla. | 1,234 | 1,787 | 1,500 | 1,275 | 88 | 1,122 |
| Tex. | 3,680 | 4,271 | 4,399 | 3,651 | 102 | 3,724 |
| **S. Cent.** | **6,017** | **6,909** | **6,845** | **5,927** | **100.0** | **5,928** |
| Colo. | 645 | 1,082 | 920 | 846 | 105 | 888 |
| Utah | 440 | 960 | 816 | 857 | 125 | 1,071 |
| Wash. | 348 | 696 | 905 | 996 | 110 | 1,096 |
| Oreg. | 1,103 | 1,762 | 1,709 | 1,726 | 100 | 1,726 |
| Calif. | 2,182 | 3,110 | 3,359 | 3,527 | 89 | 3,139 |
| **West.** | **5,813** | **8,577** | **8,583** | **8,800** | **100.1** | **8,810** |
| **U. S.** | **24,629** | **33,587** | **34,224** | **33,415** | **101.1** | **33,786** |

The actual proportions that will move in successive months will depend to a considerable extent upon later developments. Actual marketings usually vary somewhat from intended marketings. A favorable early price for turkeys this year might bring out larger proportions than now intended for the Thanksgiving market, especially in those areas where there is a considerable increase in the turkey crop this year.

Turkey marketings normally begin earliest in the West North Central states, followed by the South Atlantic states. The West North Central area expects to market 18.3 per cent of their turkey crop in October or earlier and the South Atlantic area 13.8 per cent.

The percentage of the crop to be marketed by Thanksgiving varies from 60 per cent in the West North Central and South Central states to only 42 per cent in the West.

The largest percentage of marketings after the first of the year, 19.8 per cent, is reported in the Western states, where a relatively large proportion of the birds are of the broadbreasted type raised to heavy weights for hotel and restaurant trade. The South Central states report the smallest relative marketings after the first of the year.

—Comment from U. S. D. A. Turkey Crop Report.

## Egg Breaking Operations

**Liquid Egg Production, July 1941-42**

| Commodity | | July 1941 | July 1942 | % change in 1942 |
|---|---|---|---|---|
| | | Thousand pounds | | |
| Whole eggs | | 22,425 | 41,397 | +85 |
| Mixed eggs (emulsions, also with sugar, salt, etc.) | | 5,983 | 1,544 | –74 |
| Egg whites (all descriptions) | | 5,558 | 2,654 | –52 |
| Egg yolks packed | Without salt, sugar, etc. | 3,165 | 917 | –71 |
| | With sugar | 656 | 627 | – 4 |
| | With salt | 811 | 579 | –29 |
| | All yolk emulsions, including glycerine | — | 530 | — |
| Total | | 38,598 | 48,248 | +25 |

Commercial egg breaking plants in July produced 48,248,000 pounds of liquid egg—25 per cent more than the output in July 1941. Of this total production, 17,755,000 pounds were frozen, 1,544,000 pounds were used for immediate consumption, and the remaining amount, 28,949,000 pounds, was transferred to drying. In July 1941, 26,555,000 pounds were frozen and 1,851,000 used for immediate consumption. Commercial egg breaking plants and strictly egg drying plants produced 22,418,022 pounds of dried egg in July compared with 3,298,791 pounds in July last year. Whole dried eggs for lend-lease purposes continues to be the important type of dried egg produced. Production was about 9 times larger this July than last. Dried albumen production was 42 per cent less and dried yolk 60 per cent less than similar production in July 1941.

—Comment from U. S. D. A. Liquid and Dried Egg Production Report.

**Dried Egg Production, July 1941-42**

| Commodity | July 1941 | July 1942 | % change in 1942 |
|---|---|---|---|
| | | Pounds | |
| Whole | 2,313,583 | 21,969,365 | +850 |
| Albumen | 300,507 | 173,391 | – 42 |
| Yolks | 684,701 | 275,266 | – 60 |
| Total | 3,298,791 | 22,418,022 | +580 |
| Firms reporting | 62 | | |

## Hatchery Operations

**Chicks Hatched by Commercial Hatcheries**

| Geographic Divisions | July 1939 | July 1940 | July 1941 | July 1942 | % chg. from July 1941 | Jan.-July Inc. 1941 | Jan.-July Inc. 1942 | % chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 2,669 | 2,849 | 3,305 | 3,822 | +16 | 49,114 | 55,322 | +13 |
| Middle Atlantic | 1,224 | 1,274 | 1,780 | 1,458 | –18 | 73,921 | 83,185 | +13 |
| South Atlantic | 3,417 | 4,792 | 6,773 | 8,574 | +27 | 88,790 | 98,982 | +11 |
| E. N. Central | 7,217 | 8,884 | 10,516 | 8,693 | –17 | 271,672 | 289,608 | + 7 |
| W. N. Central | 2,330 | 2,299 | 3,956 | 2,840 | –28 | 299,933 | 348,296 | +16 |
| South Central | 847 | 464 | 633 | 801 | +27 | 95,748 | 117,299 | +23 |
| Mountain | 172 | 116 | 297 | 196 | –34 | 17,127 | 16,369 | – 4 |
| Pacific | 1,730 | 1,582 | 2,338 | 2,853 | +22 | 49,293 | 53,517 | + 9 |
| U. S. | 19,606 | 22,260 | 29,598 | 29,237 | – 1 | 945,598 | 1,062,578 | +12 |

Commercial hatcheries in July produced 29,237,000 chicks—1 per cent less than the record high output of July 1941. The demand for chicks for broilers during July was good and hatcheries in the sections of the country primarily producing broiler chicks at this time of year reported increases in output. Increases of 16 per cent were reported in the New England states, 22 per cent in the Pacific Coast states, and 27 per cent in the South Atlantic and South Central states. Reductions, which more than offset these increases, were 17 per cent in the East North Central states, 18 per cent in the Middle Atlantic states, 28 per cent in the West North Central states, and 34 per cent in the Mountain states.

The main hatching season just closing is generally considered the most successful the hatchery industry has experienced. Production during the first 7 months of 1942 totaled 1,062,578,000 chicks—12 per cent larger than the previous high record output during these same months in 1941. The

**Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing**

| Geographic Divisions | Chicks booked Aug. 1 | % Light breed hatched | | % Heavy breed hatched | | Sexing |
|---|---|---|---|---|---|---|
| | % change from Aug. 1, 1941 | July 1941 | July 1942 | July 1941 | July 1942 | % change from July 1941 |
| New England | +45 | 2 | 2 | 98 | 98 | + 42 |
| Middle Atlantic | –61 | 7 | 10 | 93 | 90 | + 50 |
| South Atlantic | +20 | 1 | 1 | 99 | 99 | +620 |
| E. N. Central | –41 | 11 | 12 | 89 | 88 | – 25 |
| W. N. Central | +68 | 30 | 60 | 70 | 40 | +249 |
| South Central | – 7 | 20 | 11 | 80 | 89 | + 2 |
| Mountain | –60 | 19 | 16 | 81 | 84 | — |
| Pacific | +25 | 28 | 32 | 72 | 68 | +602 |
| U. S. | +15 | 11 | 15 | 89 | 85 | +139 |

demand for chicks remained firm throughout the season with prices for chicks well maintained and with few surpluses noted. Compared with last year, all regions of the country reported increases with the exception of the Mountain states, where a decrease of 4 per cent was reported. Increases of 23 per cent and 16 per cent occurred in the South Central and West North Central states. Other increases ranged from 7 per cent in the East North Central states to 13 per cent in the New England and Middle Atlantic states. Increase by regions, in actual numbers of chicks, shows that 44 per cent of the increase for the country was in the West North Central States.

Hatcheries continue to produce an increasing proportion of chickens raised on farms. June reports covering 154,000 farm flocks show 82 per cent of the chicks coming from hatcheries this year compared with 79 per cent last year and 75 per cent in 1940.

There are indications that a good demand for chicks for broilers is developing. Eggs set during July were 11 per cent larger than the number set in July 1941. Chicks booked on August 1 for later delivery showed an increase of 15 per cent over that on August 1 last year.

A summary for the season of plants reporting turkey hatching operations showed a 12 per cent increase in the number of turkey poults produced, indicating that the turkey crop this year will be somewhat larger than the crop last year.

—Comment from U. S. D. A. Hatchery Production Report.

# Canada's Price Ceiling for Eggs

New maximum prices for wholesale and retail sales of eggs were brought into effect in August by an order of the Wartime Prices and Trade Board. The order sets maximum wholesale prices for 11 key centers in Canada, which will be the highest price at which wholesale dealers in eggs will be able to sell to retailers any time of the year. In areas where definite wholesale prices are not stated, the maximum wholesale price is to be that of the nearest key center, plus normal freight charges.

Producers themselves remain exempt from any price ceiling, save when selling to consumers direct, in which case the present arrangement still continues.

Maximum wholesale prices as set by the Board are as follows: Halifax, Saint John, and Sydney at 50¾ cents; Montreal at 50 cents; Toronto at 49½ cents; Winnipeg at 48 cents; Regina, Saskatoon, Calgary, and Edmonton all at 47 cents, and Vancouver at 49 cents. These prices are for Grade A large, and lower grades are to find their corresponding level. While these are the highest prices to be charged during the year, normal trade fluctuations are expected to regulate prices on the usual seasonal basis, under the ceiling.

Added to the above prices, which are the wholesale delivered cost including packing and grading, there is allowed 2 cents for cartoning.

The retail maximum price is to be the maximum price paid to the wholesaler, plus the normal mark-up in existence in the basic period of last fall, Sept. 15—Oct. 11, but in any case, the mark-up taken by any retailer is not to be more than 8 cents or 20 per cent of his selling price whichever is lower. If retailers were doing business on a 5 or 6-cent margin in the basic period, they must continue with that margin.

In fixing the new wholesale maximum prices, the Board has re-adjusted prices across Canada to come more into line with actual freight and handling charges. There have been times when, particularly in eastern centers, prices were considerably out of line with these differentials. The peak price reached in Montreal last year, in November, was 59 cents, in comparison to the new maximum of 50 plus two cents, or 52 cents wholesale. In Toronto, the new maximum of 49½ plus 2 cents for cartons compares with a peak in 1941 of 54 in November.

Provision is made for permitting the continued sale of quality premium eggs. Premiums cannot exceed those charged for similar eggs during the basic period.

—Canadian Poultry Review, September 1942.

# Broad-Breasted Chickens

Broad breasts resembling breasts of strains of Bronze turkeys which have been produced in the U. S., called "Broad-Breasted Bronze," have been developed by several generations of selection of Rhode Island Reds by Professor E. A. Lloyd of the University of British Columbia.

Many of the pullets, even after nine or ten months of heavy production, still carry the broad breasts resembling the Broad-Breasted turkeys, and the sharp v-shaped breasts commonly associated with the capacity to lay heavily are gone.

—Nulaid News, August 1942.

# RESULTS OF LAYING TESTS

With a pen average of 26 eggs per bird for the month of July, a Rhode Island Red entry owned by Crooks Farm, at the Pennsylvania test, topped the country in production for the month and held its position as high pen among all standard test pens in the country to August 1.

The margin between the Crooks pen and Hillview Poultry Farm's second-place pen was widened during the month, the Crooks entry now leading by about 66 points, which might well be enough to carry it into top place at the end of the test year, now only 53 days away.

Leading hen to date is Harco Orchards' hard working Rhode Island Red at the Maine test, which laid 28 eggs worth 30.80 points during July to continue in first place with a production of 291 eggs worth 319.85 points to date. J. A. Hanson's White Leghorn at the Storrs test continues in second place, and narrowed its margin from first place by 2.5 points during the month.

Arizona continues to lead other tests, but Storrs cut the margin between the two tests from 4.13 points down to 1.73 points during July, and it's entirely possible that standings may be changed by September 22, when the tests end their year. Pennsylvania, in third place, has a margin of but 3.51 points per bird to overcome, just about half what it was on July 1.

It has been announced that the Illinois laying test will go on the standard basis during the 1942-43 test year.

### Twenty High Pens, All Breeds, to August 1–(304 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 3302 | 3505.95 | Pennsylvania |
| Hillview Poultry Farm | Rhode Island Red | 3324 | 3439.85 | California |
| Holser's Valley Farm | White Leghorn | 3207 | 3429.00 | Storrs |
| Babcock's Hatchery | White Leghorn | 3335 | 3393.90 | Pennsylvania |
| W. H. Wilson | Rhode Island Red | 3182 | 3393.30 | Georgia |
| J. A. Hanson | White Leghorn | 3160 | 3357.05 | Western New York |
| Harco Orchards | Rhode Island Red | 3096 | 3354.85 | Rhode Island |
| Kauder's Pedigreed Leghorns | White Leghorn | 3136 | 3351.35 | Storrs |
| Foreman Poultry Farm | White Leghorn | 3112 | 3350.30 | Missouri |
| Kauder's Pedigreed Leghorns | White Leghorn | 3077 | 3347.85 | Texas |
| J. A. Hanson | White Leghorn | 3175 | 3330.10 | Georgia |
| Thomas H. Mettler | Rhode Island Red | 3355 | 3311.70 | Storrs |
| Crooks Farm | Rhode Island Red | 3114 | 3302.60 | Storrs |
| G. B. Treadwell | Rhode Island Red | 3124 | 3269.25 | Maine |
| Peckham Farm | Rhode Island Red | 3073 | 3268.20 | Rhode Island |
| Joachim Breeding Farm | New Hampshire | 3058 | 3243.85 | Storrs |
| George M. Anthony | White Leghorn | 3120 | 3241.60 | Pennsylvania |
| J. A. Hanson | White Leghorn | 3046 | 3241.40 | Pennsylvania |
| Ford's Riverbank Farm | Rhode Island Red | 3098 | 3239.20 | Storrs |
| J. A. Hanson | White Leghorn | 3085 | 3232.70 | Storrs |

### High Pen in Each Test to August 1–(304 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 3302 | 3505.95 | Pennsylvania |
| Hillview Poultry Farm | Rhode Island Red | 3324 | 3439.85 | California |
| Holser's Valley Farm | White Leghorn | 3207 | 3429.00 | Storrs |
| W. H. Wilson | Rhode Island Red | 3182 | 3393.30 | Georgia |
| J. A. Hanson | White Leghorn | 3160 | 3357.05 | Western New York |
| Harco Orchards | Rhode Island Red | 3096 | 3354.85 | Rhode Island |
| Foreman Poultry Farm | White Leghorn | 3112 | 3350.30 | Missouri |
| Kauder's Pedigreed Leghorns | White Leghorn | 3077 | 3347.85 | Texas |
| G. B. Treadwell | Rhode Island Red | 3124 | 3269.25 | Maine |
| Rapp's Poultry Farm | White Leghorn | 2981 | 3177.05 | Hunterdon, N. J. |
| Holser's Valley Farm | White Leghorn | 3051 | 3113.40 | Passaic, N. J. |
| Gold Spot Hatchery | White Leghorn | 2914 | 3070.25 | Arizona |
| Foreman Poultry Farm | White Leghorn | 2886 | 3060.25 | Central New York |
| Creighton Brothers | White Leghorn | 2939 | 2978.45 | Florida |
| Robert Chapman | Rhode Island Red | 2908 | 2844.25 | Oklahoma |
| J. J. Warren | Rhode Island Red | 2683 | 2799.45 | Michigan |
| Crooks Farm | Rhode Island Red | 2689 | 2766.60 | Long Island |

### High Pen in Each Test for July

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 338 | 369.95 | Pennsylvania |
| Bodine's Pedigreed Leghorns | White Leghorn | 331 | 354.85 | Central New York |
| Kauder's Pedigreed Leghorns | White Leghorn | 325 | 353.75 | Western New York |
| Buttes Poultry Breeding Farm | White Leghorn | 330 | 337.25 | California |
| Crooks Farm | Rhode Island Red | 303 | 330.40 | Storrs |
| Holser's Valley Farm | White Leghorn | 323 | 329.10 | Passaic, N. J. |
| Foreman Poultry Farm | White Leghorn | 309 | 325.30 | Maine |
| Lindstrom Hatchery | White Leghorn | 299 | 320.25 | Missouri |
| St. Paul Hatchery | White Leghorn | 295 | 319.30 | Michigan |
| Babcock's Hatchery | White Leghorn | 314 | 319.00 | Georgia |
| Harco Orchards | Rhode Island Red | 289 | 316.90 | Rhode Island |
| Rapp's Poultry Farm | White Leghorn | 280 | 304.35 | Hunterdon, N. J. |
| Booth Farms & Hatchery | White Leghorn | 284 | 302.80 | Texas |
| Foreman Poultry Farm | White Leghorn | 284 | 296.15 | Long Island |
| Booth Farms & Hatchery | White Leghorn | 275 | 288.70 | Oklahoma |
| W. A. Seidel | White Leghorn | 271 | 285.25 | Florida |
| Booth Farms & Hatchery | White Leghorn | 275 | 280.55 | Arizona |

### High Pen in Each Breed to August 1–(304 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 3302 | 3505.95 | Pennsylvania |
| Holser's Valley Farm | White Leghorn | 3207 | 3429.00 | Storrs |
| Joachim Breeding Farm | New Hampshire | 3058 | 3243.85 | Storrs |
| Dryden Poultry Farm | Barred Rock | 3150 | 3189.45 | Pennsylvania |
| Riley Poultry Farm | White Rock | 2850 | 2893.25 | Storrs |
| Laclede Hatchery | Australorp | 2313 | 2480.35 | Missouri |
| T. D. Brown | White Minorca | 2323 | 2449.15 | Texas |
| Harvey Taylor | White Wyandotte | 2319 | 2427.35 | Missouri |
| Imperial Breeding Farm | White Giant | 2337 | 2408.35 | Maine |
| Horne's Hatchery | Black Minorca | 2139 | 2331.40 | Texas |
| Raymond S. Thomas | Ancona | 2208 | 2288.15 | Pennsylvania |
| Mrs. C. W. Renolds | Columbian Rock | 2232 | 2285.50 | Missouri |
| Imperial Plty. Farm | New Hampshire White | 2008 | 2147.00 | Missouri |
| Maine Test Pen | Cross | 2007 | 2071.55 | Maine |
| Miami Chick Hatchery | Buff Rock | 1922 | 1948.05 | Michigan |
| Iowa Master Breeders | Buff Orpington | 1957 | 1867.55 | Texas |
| Henry F. Waitt | Buff Minorca | 1767 | 1760.70 | Maine |
| Charles A. Richardson | Buff Leghorn | 1872 | 1760.10 | Hunterdon, N. J. |
| Wellington Wells | Silver Laced Wyandotte | 1752 | 1629.20 | Maine |
| Philip Maddux | Black Leghorn | 1410 | 1316.85 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 1346 | 1313.05 | Florida |

## High Hen in Each Breed to August 1—(304 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 291 | 319.85 | Maine |
| J. A. Hanson | White Leghorn | 295 | 311.55 | Storrs |
| Joachim Breeding Farm | New Hampshire | 288 | 298.80 | Storrs |
| Dryden Poultry Farm | Barred Rock | 272 | 297.10 | Storrs |
| Raymond S. Thomas | Ancona | 261 | 285.85 | Pennsylvania |
| Laclede Hatchery | Australorp | 252 | 274.50 | Missouri |
| G. W. Schottman | White Wyandotte | 245 | 268.25 | Missouri |
| Bagby Poultry Farm | White Rock | 250 | 266.50 | Texas |
| Harry L. Phillips | Columbian Rock | 239 | 255.05 | Missouri |
| Imperial Breeding Farm | White Giant | 239 | 247.80 | Maine |
| Imperial Breed. Farm | New Hampshire White | 226 | 245.35 | Missouri |
| Dryden Poultry Farm | Cross | 237 | 244.30 | California |
| Horne's Hatchery | Black Minorca | 211 | 231.45 | Texas |
| T. D. Brown | White Minorca | 214 | 229.60 | Texas |
| Charles A. Richardson | Buff Leghorn | 204 | 195.65 | Hunterdon, N. J. |
| Iowa Master Breeders | Buff Orpington | 190 | 194.50 | Texas |
| Henry F. Waitt | Buff Minorca | 193 | 193.20 | Maine |
| Donald C. Chandler | Silver Laced Wyandotte | 194 | 192.35 | Maine |
| Miami Chick Hatchery | Buff Rock | 178 | 190.30 | Michigan |
| Philip Maddux | Black Leghorn | 160 | 163.50 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 138 | 141.40 | Florida |

## High Hen in Each Test to August 1—(304 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 291 | 319.85 | Maine |
| J. A. Hanson | White Leghorn | 295 | 311.55 | Storrs |
| Harco Orchards | Rhode Island Red | 282 | 309.20 | Rhode Island |
| Crooks Farm | Rhode Island Red | 281 | 306.90 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 289 | 306.30 | Missouri |
| Alampi Poultry Farm | Rhode Island Red | 278 | 305.25 | Passaic, N. J. |
| Charles D. Deisher | White Leghorn | 287 | 303.25 | Texas |
| Holser's Valley Farm | White Leghorn | 277 | 301.85 | Georgia |
| E. B. Parmenter | Rhode Island Red | 276 | 301.60 | Western New York |
| Bagby Poultry Farm | Rhode Island Red | 278 | 296.45 | Arizona |
| Foreman Poultry Farm | White Leghorn | 270 | 295.85 | Central New York |
| Rapp's Poultry Farm | White Leghorn | 271 | 291.85 | Hunterdon, N. J. |
| E. B. Parmenter | Rhode Island Red | 271 | 290.10 | California |
| J. K. Bedell | White Leghorn | 273 | 288.30 | Florida |
| W. A. Downs | White Leghorn | 266 | 282.95 | Michigan |
| Foreman Poultry Farm | White Leghorn | 274 | 279.45 | Oklahoma |
| Foreman Poultry Farm | White Leghorn | 263 | 279.15 | Long Island |

## Twenty High White Leghorn Pens to August 1—(304 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Holser's Valley Farm | 3207 | 3429.00 | Storrs |
| Babcock's Hatchery | 3335 | 3393.90 | Pennsylvania |
| J. A. Hanson | 3160 | 3357.05 | Western New York |
| Kauder's Pedigreed Leghorns | 3136 | 3351.35 | Storrs |
| Foreman Poultry Farm | 3112 | 3350.30 | Missouri |
| Kauder's Pedigreed Leghorns | 3077 | 3347.85 | Texas |
| J. A. Hanson | 3175 | 3330.10 | Georgia |
| George M. Anthony | 3120 | 3241.60 | Pennsylvania |
| J. A. Hanson | 3046 | 3241.40 | Pennsylvania |
| J. A. Hanson | 3085 | 3232.70 | Storrs |
| Kauder's Pedigreed Leghorns | 2969 | 3210.35 | Pennsylvania |
| W. A. Seidel | 3002 | 3182.60 | Texas |
| Rapp's Poultry Farm | 2981 | 3177.05 | Hunterdon, N. J. |
| Kauder's Pedigreed Leghorns | 2927 | 3161.10 | Georgia |
| Foreman Poultry Farm | 3008 | 3150.90 | Storrs |
| Babcock's Hatchery | 3120 | 3141.25 | Georgia |
| W. A. Seidel | 2982 | 3136.45 | Texas |
| Booth's Farms & Hatchery | 3004 | 3133.10 | Pennsylvania |
| Foreman Poultry Farm | 3113 | 3124.60 | Maine |
| Kauder's Pedigreed Leghorns | 2930 | 3122.60 | Storrs |

## Twenty High Rhode Island Red Pens to August 1—(304 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Crooks Farm | 3302 | 3505.95 | Pennsylvania |
| Hillview Poultry Farm | 3324 | 3439.85 | California |
| W. H. Wilson | 3182 | 3393.30 | Georgia |
| Harco Orchards | 3096 | 3354.85 | Rhode Island |
| Thomas H. Mettler | 3355 | 3311.70 | Storrs |
| Crooks Farm | 3114 | 3302.60 | Storrs |
| G. B. Treadwell | 3124 | 3269.25 | Maine |
| Peckham Farm | 3073 | 3268.20 | Rhode Island |
| Ford's Riverbank Farm | 3098 | 3239.20 | Storrs |
| To-Lani Farm | 3100 | 3232.05 | Georgia |
| C. C. Hersey | 3038 | 3166.15 | Storrs |
| G. B. Treadwell | 3039 | 3136.60 | Storrs |
| E. B. Parmenter | 2939 | 3131.80 | California |
| J. J. Warren | 2914 | 3129.45 | Rhode Island |
| E. B. Parmenter | 2963 | 3117.45 | Pennsylvania |
| W. H. Wilson | 2973 | 3098.80 | Georgia |
| Thomas H. Mettler | 3090 | 3096.85 | Storrs |
| J. J. Warren | 2889 | 3095.55 | Maine |
| Crooks Farm | 2927 | 3075.20 | Storrs |
| J. J. Warren | 2985 | 3074.05 | Storrs |

## Twenty High New Hampshire Pens to August 1—(304 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Joachim Breeding Farm | 3058 | 3243.85 | Storrs |
| George A. Pearce | 3009 | 3170.40 | Hunterdon, N. J. |
| George A. Pearce | 2835 | 2973.25 | Storrs |
| Joachim Breeding Farm | 2805 | 2965.00 | Hunterdon, N. J. |
| Joachim Breeding Farm | 2750 | 2830.80 | Pennsylvania |
| Ebenwood Farm | 2642 | 2830.50 | Rhode Island |
| Hubbard Farms | 2744 | 2821.60 | Georgia |
| James H. Horne | 2659 | 2819.45 | Storrs |
| Ebenwood Farm | 2657 | 2816.10 | Storrs |
| Hubbard Farms | 2692 | 2811.70 | Western New York |
| Crescent Farms | 2645 | 2806.50 | Florida |
| Hubbard Farms | 2714 | 2797.80 | Pennsylvania |
| H. S. & M. E. Twichell | 2602 | 2796.70 | Western New York |
| Howard Breeding Farm | 2622 | 2795.85 | California |
| W. G. Ashley | 2608 | 2791.55 | Arizona |
| Del Rio Farm | 2616 | 2789.00 | Arizona |
| Forest Hill Poultry Farm | 2625 | 2739.25 | Storrs |
| Fairport Hatchery | 2643 | 2724.05 | Western New York |
| Hubbard Farms | 2591 | 2707.30 | Storrs |
| Clarence E. Colby | 2579 | 2702.30 | Storrs |

## Twenty High Barred Plymouth Rock Pens to August 1—(304 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Farm | 3150 | 3189.45 | Pennsylvania |
| Dryden Poultry Farm | 3010 | 3104.95 | Storrs |
| Dryden Poultry Farm | 2923 | 3030.35 | Storrs |
| Norman Amidon | 2858 | 2940.85 | Maine |
| Harco Orchards | 2997 | 2925.75 | Maine |
| Dryden Poultry Farm | 2850 | 2908.00 | California |
| A. J. Urquhart | 2780 | 2833.55 | Maine |
| Harco Orchards | 2679 | 2822.75 | Storrs |
| J. W. Schaible | 2815 | 2811.15 | Hunterdon, N. J. |
| Harco Orchards | 2636 | 2786.35 | Rhode Island |
| Penn's Poultry Breeding Farm | 2715 | 2770.40 | Texas |
| Fisher Orchards | 2571 | 2748.10 | Pennsylvania |
| Peachblow Farm | 2671 | 2744.60 | Maine |
| Parks Barred Rock Farm | 2619 | 2731.95 | Pennsylvania |
| Foster Jameson | 2577 | 2729.00 | Maine |
| A. J. Urquhart | 2535 | 2719.75 | Rhode Island |
| A. J. Urquhart | 2647 | 2713.50 | Passaic, N. J. |
| Hockhockson Farm | 2577 | 2708.75 | Hunterdon, N. J. |
| David T. Cohen | 2573 | 2704.55 | Storrs |
| A. J. Urquhart | 2595 | 2686.50 | Storrs |

## Twenty High White Plymouth Rock Pens to August 1—(304 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Riley Poultry Farm | 2850 | 2893.25 | Storrs |
| Bagby Poultry Farm | 2631 | 2802.45 | Texas |
| Ralph DeYoung | 2672 | 2777.90 | Maine |
| Missouri Valley Poultry Farm | 2562 | 2725.05 | Texas |
| Four Winds Farm | 2601 | 2709.30 | Michigan |
| Missouri Valley Hatchery | 2614 | 2669.50 | Georgia |
| Riley Poultry Farm | 2540 | 2569.10 | Georgia |
| Carter-Dunham | 2352 | 2523.10 | Texas |
| Albert C. Lawton | 2370 | 2483.60 | Storrs |
| Inspiration Acres | 2522 | 2444.05 | Florida. |
| Carter-Dunham | 2288 | 2443.90 | Georgia |
| Holtzapple Poultry Farm | 2340 | 2434.25 | Pennsylvania |
| Knepley Hatchery | 2393 | 2429.25 | Oklahoma |
| Superior Hatchery | 2328 | 2409.15 | Texas |
| St. Paul Hatchery | 2298 | 2400.65 | Michigan |
| St. Paul Hatchery | 2303 | 2379.65 | Florida |
| Booth Farms & Hatchery | 2266 | 2366.35 | Texas |
| Imperial Breeding Farm | 2379 | 2358.10 | Storrs |
| Booth Farms | 2216 | 2357.25 | Missouri |
| Kerr Chickeries | 2252 | 2322.95 | Hunterdon, N. J. |

## Average Production and Mortality, Each Test, to August 1—(304 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for July | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Arizona | 390 | 190.75 | 199.91 | 24.96 | 1.54 | 13.85 |
| Storrs | 1,352 | 191.05 | 198.18 | 24.78 | 1.78 | 13.47 |
| Pennsylvania | 1,105 | 190.47 | 196.40 | 24.62 | 2.62 | 14.30 |
| Hunterdon, N. J. | 624 | 188.29 | 194.45 | 24.64 | 1.77 | 12.67 |
| California | 598 | 186.75 | 192.26 | 24.58 | 1.51 | 14.22 |
| Georgia | 1,326 | 185.10 | 189.75 | 24.50 | 2.41 | 15.69 |
| Rhode Island | 611 | 182.76 | 188.20 | 24.58 | 1.80 | 16.04 |
| Western New York | 975 | 176.72 | 186.18 | 24.94 | 3.18 | 11.90 |
| Texas | 1,456 | 177.52 | 184.95 | 24.82 | 2.40 | 16.42 |
| Florida | 1,118 | 178.27 | 184.02 | 24.64 | 2.15 | 13.42 |
| Passaic, N. J. | 871 | 175.83 | 181.38 | 24.62 | .80 | 15.50 |
| Maine | 988 | 173.88 | 176.98 | 24.34 | 2.04 | 13.67 |
| Central New York | 1,066 | 164.48 | 171.25 | 24.82 | 3.84 | 15.48 |
| Missouri | 780 | 159.83 | 170.60 | 25.32 | 2.18 | 15.77 |
| Oklahoma | 650 | 161.47 | 162.62 | 24.14 | 1.67 | 14.75 |
| Michigan | 871 | 154.95 | 156.91 | 24.24 | 1.84 | 20.56 |
| Long Island | 1,092 | 155.61 | 156.70 | 24.14 | 2.74 | 16.76 |
| All Tests | 15,873 | 176.10 | 181.80 | 24.62 | 2.13 | 14.96 |

# *Hospital Pen Useful*

Every flock of birds, whether on free range or confined, should have a small hospital pen available. You may not have any sick turkeys, but you use it just the same.

If you do have sick birds, it is the height of folly to leave them with the healthy flock, where they can so easily contaminate the well birds. Disease spreads mainly through droppings, so when ailing birds are removed, the most potent carrier of the trouble is rendered harmless to the balance of the flock.

The hospital pen, fitted with shade, feed and water, is always useful; if for no other purpose than to give you, personally, the justifiable pride of being fully prepared.

—Norbest News, August 1942.

NATIONAL
# POULTRY DIGEST

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## Research Serves Poultrymen

By CLARENCE E. LEE
Chairman, Committee on Nutrition
American Feed Manufacturers Association

*Reprinted from New England Homestead*

PROBABLY the average poultryman does not fully realize it, but it is a fact that research work carried on by feed manufacturers, state colleges, and experiment stations has literally saved the poultry industry from disaster. Without this research, the shortage in critical feeding materials would have caused drastic shrinkage in egg production, would have led to the death or marketing of hundreds of thousands of hens, would have made impossible the rearing of many hundreds of thousands of chicks, and would have produced subnormal growth in others.

These may seem to be strong statements but they are not startling to those who know the facts.

### Natural Vitamin D Cut Off

When Hitler started his drive into Poland, curtailment of shipments of cod liver oil from European countries, upon which the United States was almost tragically dependent, started immediately. With the fall of Norway, the conversion of British fishing boats to mine layers and mine sweepers and the Axis war on shipping were responsible for a truly desperate situation in our vitamin D supply. Temporarily, a great increase in shipments from Japan relieved the situation materially but, with

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the attack on Pearl Harbor, the Japanese supply was entirely cut off and had it not been for the commercial production of D-Activated Animal Sterols in this country and the fact that most feed manufacturers and many college laboratories had thoroughly tested this material and learned how to use it, calamity would have hit the poultry industry and hit it quickly.

It is true that a few manufacturers had been far-sighted enough to accumulate large stocks of high potency cod liver and other fortified oils prior to and directly after the opening of the war. These were limited to a very few, however, and the total amount of oil in the country was but a fraction of what would have been needed, considering the demands of the expanding poultry industry gearing itself to meet the government demand for greater and greater production and the requirements for vitamin capsules for our Army and for our Allies, depending on us for huge shipments under the lease-lend program.

### No Shortage Possible Now

Fortunately, research carried on prior to the war had put us in a position to meet this situation and there is now no danger of a vitamin D shortage in this country, even with the great expansion in the production of milk, eggs, and meat.

At about the same time, a very serious situation in regard to supplies of dried skimmilk began to develop. Britain was calling for huge shipments, of dried milk for human use and the condensed milk producers were likewise turning out tremendous quantities of canned milk. Shortage of milk for feeding purposes and the rapidly rising price brought us face to face with another very serious situation. Had the same situation developed 10 years ago, it would have resulted in lower egg production, vastly higher feed prices, poorer growth of chicks, and higher mortality. Fortunately, feed research was also ready to meet that problem. Many other sources of riboflavin and the other vitamin B complex factors had been investigated, and many other materials tested for quality of protein in spite of the increasing difficulty in securing supplies of high grade liver meal from South America, Australia, and New Zealand, and the very limited production of dehydrated brewer's yeast, new products, which were rapidly put into mass production, met the need.

The result was that feed prices were not sent skyrocketing out of sight and manufacturers were able to not only keep down the price to a reasonable level but to actually increase the potency of riboflavin and some of the other vitamin B complex factors to a point higher than they had been before.

While we recognize dried skimmilk, dried buttermilk, and other milk by-products as valuable feed ingredients, we are now no longer dismayed by the limited supply.

### Substitute for Vitamin A

A severe shortage of vitamin A, due to the same war-time interference with fish oil supplies as mentioned in the case of vitamin D oil, became apparent a year ago and began to cause increasing concern. Here again, research came to the rescue. It had been already established that there were many sources of pro-vitamin A which were adequate to take care of the needs of the birds. Fortunately, poultry can convert carotene and other pro-vitamin A pigments into true vitamin A at a high level of efficiency, much more so than in the case of most four-footed animals. Therefore, producers of alfalfa leaf meal and alfalfa meal were encouraged to increase production and to improve their processing so as to retain the greatest possible pro-vitamin A value in the completed product. More modern dehydrators were installed, alfalfa was cut at a younger age and processed immediately after cutting, cold storage was utilized for carrying over the alfalfa from the end of the cutting season to the next year, and manufacturers made more liberal use of corn and other products also carrying appreciable amounts of pro-vitamin A.

Even before the War Production Board's Vitamin A Limitation Order L-40 went into effect, manufacturers were adjusting themselves to the changed situation. Research had established the necessary vitamin A standards and pointed the way to maintenance of the necessary potencies in feeds through a combination of true vitamin A and pro-vitamin A materials. Here again disaster was averted.

### Molasses Limited

The manufacture of the huge quantities of explosives necessary to prosecute the war depended on alcohol production. Many of the very largest alcohol producing plants were equipped only for the use of molasses as the basic material and had experience only in alcohol production by this process. Ships were scarce and getting scarcer so that bringing Cuban and other foreign molasses to this country became an increasingly difficult problem. Under the circumstances, the government was forced to limit the amount of molasses which could be used in feeds. The quota was established on the basis of quarterly periods with the base being the twelve months ending July 1st, 1941, a period in which less molasses was being used than was the case with a later period such as the full calendar year of 1941. The use of molasses had been increasing.

The molasses situation was not

critical from the standpoint of the feed industry, but the reduction in molasses unquestionably introduced a decided handicap in the production of milk, eggs, and meat, particularly in the case of milk and meat production, as specialized feeds carrying molasses had proved to be of great value in maintaining maximum feed consumption, condition of the stock, and quality of meat. Research here has partially bridged the gap by pointing the way to formula changes which would allow reduction of molasses without corresponding drop in results secured.

In the winter and spring just passed, research averted another danger. The increased use of alfalfa had stepped up consumption to a point where the entire supply of good alfalfa was absorbed by the feed industry. Had it not been for the fact that research in the previous few years had indicated that high temperatures are the primary factor in the loss of potency of alfalfa in storage, there would have been little possibility of sufficient pro-vitamin A being secured. However, research had pointed the way and a few of the larger producers of alfalfa and cereal grass had utilized cold storage and brought through their product at high pro-vitamin A potency so that the loss was largely averted and a smaller quantity sufficed to meet the needs. With the addition of other feed materials, such as corn gluten meal, which had demonstrated pro-vitamin A potency, the situation was met and the poultry industry did not suffer.

## Using Government Wheat

A few months ago a somewhat critical situation developed in wheat feeds. The Canadian government had been forced to embargo shipment of wheat feeds to this country by the need for retaining all wheat feeds for use in feeding Canadian livestock, the production of which had been sharply expanded by British demand. Wheat feed prices shot upward. The government stepped in and released feed wheat for grinding and use in livestock rations in place of the ordinary wheat by-product feeds.

Here again, research pointed the way to effective use of this material. It was obvious that a simple exchange of wheat bran, wheat middlings, and other wheat by-product feeds for ground feed wheat would not be practical. To do so would involve the production of a gummy, pasty, condition when the resulting rations were mixed with water in the digestive system of the birds. In fact, it might even result in the feed accumulating in the corners of the jaws causing the condition usually known as "Pressure Necrosis" which used to be seen occasionally, particularly with birds in cages not receiving a supply of grit. However, many feed manufacturers and a few experiment stations had done research work on this problem and were able to determine the proper use of the ground feed wheat to advantage, thus the demand for wheat by-product feed was lessened, the market price came down and the situation reached a balance.

In the last few months, we have faced an increasingly serious situation in regard to animal protein feeds. With a vastly increased poultry production, the demand for meat scrap and fish meal has increased enormously. With millions of men in the Army instead of at home and a larger proportion of meat going to these men than would be the case when they were in civilian life, butcher shop collections have shrunk in the face of rising demand for meat scrap to feed the enlarged poultry flocks of the country. The flow of Argentine materials has been virtually cut off.

Submarine and other hostile activity along both the Pacific and Atlantic Coasts has interfered with fishing. The government has taken over many fishing boats for war purposes. Rigid regulations have been set up by the Coast Guard which in effect reduces the number of hours of fishing that can be done and shuts off the fishing boats entirely from certain areas. Consequently, it seems almost inevitable that the production of fish meal this year will be considerably smaller than usual. Throughout the spring and early summer, practically no fish meal was available except that which had already been bought on previous contract, and the situation in regard to meat scrap was even tighter.

Without the research on vegetable proteins which has been carried on by private and public laboratories for the last decade, we would be in another highly dangerous situation right now. As it is, the accumulated research has pointed the way to effective use of vegetable proteins, properly supplemented with the necessary minerals and vitamin carriers to replace the animal proteins in our poultry rations. Complete substitution is not expected or desirable, but it will be possible to make sufficient substitutions so that the supply of meat scrap and fish meal should prove adequate to meet the needs of war time poultry productions.

Research Marches On!

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SHELLS for the 4 billion dozen eggs expected to be produced by the nation's chickens in 1942 will require more than a billion pounds of calcium carbonate, says Mineral Highlights, house organ of the Limestone Products Corporation. An average of 2.17 ounces of calcium carbonate is contained in each 24-ounce dozen of eggs, which would require 540,000,000 pounds of the mineral if hens were 100 per cent efficient in converting crystals to egg shells. Since they are only about 50 per cent efficient, however, the total requirements will exceed a billion pounds.

# Soybean Oil Meal in Poultry Feeding

By C. W. CARRICK
Purdue Agricultural Experiment Station

*Condensed from a Talk*

THERE has long been, and still is, much confusion in the interpretation of experimental work concerning the relative value of vegetable and animal proteins. We are convinced, so far as the protein of soybean oil is concerned, that the evidence from chemical determinations, from metabolism studies, and from suitable feeding trials justifies the conclusion that soybean oil meal, when properly processed, supplies protein of high quality. For practical purposes, it can compete favorably with the protein from animal products in supplementing the protein of corn.

There are certain factors in the vitamin B complex which are just as necessary for growth, egg production, and hatchability as are some of the amino acids in the protein. Some animal products supply some of these vitamins, which are inadequately supplied by soybean oil meal and corn.

In many of the feeding trials with poultry, no corrections were made for the missing vitamins, so soybean oil meal and other vegetable proteins were reported as supplying poor quality proteins, while the better results from the animal products were erroneously interpreted as due to better proteins. Actually, some of these animal products have protein of lower biological value than the protein in soybean oil meal. Much of the credit given to animal protein should be given to the vitamins that occur in the animal feeds such as meat scraps, fish scraps, and various milk products.

## Early Experimental Results

The early experiments of A. G. Philips and S. M. Hauge at the Purdue Station demonstrated very definitely that just as good results in egg production and hatchability could be obtained with a soybean-grain ration, with mineral supplements, as from a ration with animal products as the principal protein supplement, when both rations were fed to fowls having access to good pasturage. The pasturage supplied the vitamins present in the animal products, but inadequately supplied by the soybean oil meal. There may still be those who would argue that the proteins in the pasturage were of high quality, but even so, they could not be called "animal" proteins.

Furthermore, work at the Wisconsin Agricultural Experiment Station in which casein and riboflavin were added to basal rations with soybean oil meal indicates very definitely that soybean oil meal protein is satisfactory for hatchability when the vitamin factors are supplied.

Recent experiments at Purdue demonstrate definitely that soybean oil meal, corn, and alfalfa leaf meal supply adequate protein for high egg production and that this ration with either pasturage or 2.5 per cent of liver meal gives high hatchability. The small amount of protein in the liver meal could hardly be responsible for the increased hatchability in view of the known vitamin content of the product.

## Adequate Growth in Chicks

In work with young chicks at the Purdue Agricultural Experiment Station, rations in which the protein was supplied by corn, soybean oil meal, and alfalfa leaf meal, gave adequate growth only when supplemented with riboflavin, nicotinic acid, and choline. When any of these were omitted, the growth rate was reduced. Furthermore, this type of ration in which 5 per cent of alcohol extracted meat and bone scraps was included gave inadequate growth.

The same result was obtained when extracted casein (a high quality protein) was included. When unextracted meat and bone scraps was included in the ration, the growth rate was increased. And when 5 per cent each of wheat bran and middlings were included in addition to the meat scraps and a milk vitamin concentrate, the growth rate was adequate and somewhat greater than when 5 per cent of dried skim milk and 5 per cent of meat and bone scraps were included in the ration.

In the light of the evidence submitted, there seems to be little reason to continue to believe that animal protein per se is necessary to get satisfactory growth, egg production, or hatchability. It is obvious that both meat and milk products contain certain factors of the vitamin B complex not supplied adequately by soybean oil meal, corn, and alfalfa leaf meal, in the combination in which we used these feeds. These factors appear to be riboflavin, choline, and possibly pantothenic acid and nicotinic acid.

## Source of New Growth Factor

Soybean oil meal, in the amounts we have used, has been shown to be a satisfactory source of what appears to be a new growth factor which has recently been found at the Purdue Station to be present in casein, yeast, liver meal, milk products, and distillers' dried solubles. There is some evidence that wheat or wheat by-products contain one or more growth factors in which corn and soybean oil meal are deficient. Whether this factor is one already

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Lafayette, Indiana, September 16 and 17, 1942

known, we are unable to say at this time.

In the absence of pasturage, it is still good practice to use a small amount of meat or milk products or both in growing or breeding rations made up largely of corn and soybean oil meal, but we may regard them primarily as vitamin supplements, when considerable soybean oil meal is used for protein. Possibly yeast, distillers' dried solubles, or other fermentation byproducts may be found to supply these vitamins in a practical way. In such a case every day practice will depend upon cost of the various products as to which products should be used. So far as laying rations are concerned, animal feeds are unnecessary, but may be practical, when price relationships are favorable for their use.

Experiments at the California Experiment Station indicated that 25 to 30 per cent of soybean oil meal in chick rations was adequate to prevent slipped tendons, so far as choline was concerned. In our experiments with chicks, no slipped tendons were apparent, during the eight weeks of observation, in either the lots with or without the choline additions. Possibly processes or other factors affect the amount or the availability of the choline in soybean oil meal; or possibly the presence or absence of other nutritional factors in the ration may influence the utilization of choline. We do know that 5 per cent of meat and bone scraps in our ration corrected the choline deficiency. Possibly wheat or wheat by-products may be of value also. We are now beginning a series of experiments to determine why our type of ration failed to supply the necessary choline, but it may be some time before we have the answer.

## Mineral Lack Easily Corrected

There was a time when mineral deficiencies were the reason for poor results from vegetable protein feeds in comparison with animal products. In practice there seems to be no problem in correcting these mineral deficiencies in simple rations consisting largely of corn and soybean oil meal. Such rations are deficient in phosphorous, calcium, salt, and manganese.

So long as the phosphorous content of the ration is .80 to 1.0 per cent of the ration and the calcium is about 1.5 to 2 times the phosphorous, there seems to be no problem. When the ration contains one-half per cent of a salt mixture made up of 95 pounds of salt and 5 pounds of manganese sulphate, the requirements for these substances appear to be met.

It should be noted that these mineral corrections are for the **ration,** not just the mash, unless the ration is an all-mash ration. In grain and mash rations for layers and for growing chickens after six or eight weeks, it is usually assumed that half grain and half mash will be consumed. Although this assumption is not exactly correct in actual practice, it appears to be safe enough for calculating mineral corrections.

There has been some work at the Colorado Experiment Station to suggest that soybean oil meal in large quantities promotes goiter in fowls. The thyroids were normal when iodine was added. The depressing effect on egg production and reproduction was not overcome by iodine, but it was alleviated moderately by bran and middlings, but to the greatest extent by meat scraps.

In our work at Purdue with rations high in soybean oil meal, we have not observed any adverse effects of this kind. Some authorities are recommending the use of iodized salt in the mineral mixture as a safeguard against this goitrous condition. It should be pointed out that too much iodine may prove toxic; however, there is no observation to suggest that one-half per cent of iodized salt in the ration causes any trouble.

## Reduced Slipped Tendon Trouble

Only in recent years has soybean oil meal been in a favorable competitive position with animal products from a price standpoint, when one considered other adjustments which had to be made in poultry rations when soybean oil meal was used for protein. Yet many years ago we found that it was advisable to use some soybean oil meal to replace meat and bone scraps in rations for rapid growing broilers in order to reduce trouble from slipped tendons.

The meat and bone scraps if fed in large amounts, 15 to 20 per cent of the ration, provided too much mineral matter for normal tendons. Since the soybean oil meal was low in mineral content and high in good protein, it was possible by its use to have a high level of protein, necessary for maximum growth, without excessive minerals which would cause slipped tendons.

In conclusion, soybean oil meal can be used in liberal quantities in rations for poultry as a protein supplement. It can be used in relatively simple rations with corn, alfalfa leaf meal, simple mineral corrections, and fish oil for satisfactory egg production by fowls in confinement. For good hatchability, it is necessary to use some meat products, milk products, pasturage or other sources of the vitamin B complex factors.

For starting young chicks during the first six weeks, soybean oil meal can be used as the protein supplement in rations high in corn, but mineral and vitamin adjustments must be made.

We would caution against too radical a change in feed formulas and suggest that rations of known performance be used as the basis for practice. Soybean oil meal properly processed supplies high quality protein for supplementing corn in poultry rations, but it and corn are deficient in several mineral and vitamin factors. These deficiencies, however, can be corrected by other common products.

## Wickard Calls for More Poultry Meat

Secretary of Agriculture Claude R. Wickard, on September 16, called upon the Nation's poultry industry to produce 200,000,000 extra chickens during the coming fall and winter months to help supplement the supplies of meat in prospect for civilian use.

This means of increasing meat for civilians was proposed to the Secretary by the National Poultry Defense Committee and affiliated organizations. Production of the extra chickens will be in addition to the record production of eggs, laying hens, and meat chickens which American poultrymen and farmers are supplying to meet all wartime requirements in 1942. Thus far this year more than 40,500,000,000 eggs have been produced, while the number of laying hens has been increased by fully 13 per cent to a total of 315 million. Indications are that farmers will sell about 17 per cent more meat chickens this year than in 1941.

The national poultry organizations suggested that 200,000,000 additional chickens be reared to a weight of at least 3 pounds to supply an additional 600,000,000 pounds of poultry for consumers this winter. Secretary Wickard has been assured that poultrymen and farmers, utilizing existing brooder house and other production equipment not normally used to capacity during this season, would participate in the program. A million producers rearing 200 chickens each would assure reaching the goal.

The additional chickens will supplement the supplies of beef, pork, veal, and lamb available for domestic consumers after sufficient quantities of the so-called red meats are reserved for all military and lend-lease requirements.

A five-point plan for the efficient operation of the emergency program has been suggested. The five points include increased hatchery outputs at this season in line with demand for chicks; adoption of a management program to meet cold weather production problems; feeding to utilize feed wheat and vegetable oil meals, of which there are greatly increased supplies; sanitation; and utilization of existing equipment and facilities.

The 200,000,000 extra chickens sought under the emergency program will require more than a million tons of feed if they are marketed at an average weight of about three pounds. Fortunately, ample quantities of feed wheat, together with soybean and peanut meal, will be available to supplement normal poultry feed supplies. Feed manufacturers can utilize extra quantities of wheat and vegetable oil meals together with the necessary alfalfa meal, bone meal, and other mineral and vitamin supplements used in poultry diets. Some of the feed wheat should be used for scratch grain as a substitute for corn, which is less plentiful.

Efficient operation of the emergency program will be necessary, Department officials point out, so that the extra chickens produced will be marketed during the "off" season and out of the way before poultrymen and farmers must give full attention to the egg and poultry production needed in 1943.

—U.S.D.A. News Release, Sept. 16, 1942.

## Mortality in Sexed and Non-Sexed Chicks

| | Non-Sexed | | | | Sexed | | | |
|---|---|---|---|---|---|---|---|---|
| Year | Flocks | Chicks | Mortality Per Cent | Cockerels Per Cent | Flocks | Chicks | Mortality Per Cent | Cockerels Per Cent |
| 1936 | 42 | 59,959 | 8.5 | 49.2 | 33 | 22,007 | 11.8 | 3.5 |
| 1937 | 24 | 32,490 | 4.8 | 48.0 | 28 | 22,857 | 5.0 | 5.7 |
| 1938 | 29 | 29,019 | 6.1 | 41.9 | 16 | 8,673 | 9.1 | 2.3 |
| 1939 | 22 | 35,459 | 8.0 | 47.9 | 26 | 15,543 | 5.4 | 3.2 |
| 1940 | 20 | 29,964 | 9.4 | 49.2 | 21 | 14,813 | 4.9 | 3.3 |
| 1941 | 21 | 29,315 | 4.6 | 49.5 | 19 | 15,980 | 5.0 | 2.4 |
| 1942 | 10 | 13,145 | 5.3 | 49.4 | 11 | 8,526 | 4.2 | 1.3 |

The accompanying table, prepared by Carl Frischknecht of the Utah State Agricultural College, proves conclusively that hatcherymen are not adding any sexed cockerels to their straight-run chicks, contrary to the belief of some poultry raisers. It shows, too, that mortality with sexed chicks is not greater than that with straight-run chicks, indicating that chicks are not harmed in the sexing operation.

It is interesting to note that the average percentage of cockerels in sexed chicks has declined steadily, being but 1.3 in 1942. Chick sexors are more efficient than they were a few years ago, says the Utah news release.

¶ DIM OUT regulations force the trucks of the San Diego Cooperative Poultry Association, San Diego, Calif., to be back at the plant before dark. Members have been cautioned to place their orders well ahead of delivery time, for trucks now leave early in the morning.

# WAR AND THE POULTRY RAISER

### Further Buying of Canned Poultry by AMA Unlikely Before Next Fall

On the basis of present requests from the allies of this country, it is probable that no further purchases of canned boned chicken and canned boned turkey will be made before the fall of 1943, the U. S. Department of Agriculture said September 25.

Purchases of the two products have been made by the Agricultural Marketing Administration at the request of our allies for hospital use. Since September 1941 when the first purchases were made for Lend-Lease, AMA has bought more than 5,640,000 pounds of canned boned chicken and 1,275,000 pounds of canned boned turkey. Of these quantities, a total of more than 6,700,000 pounds has been delivered for shipment, leaving about 200,000 pounds available for future shipment.

—News release, U. S. Department of Agriculture.

### Egg and Poultry Processors Advisory Committee Formed

The War Production Board has announced the formation of an egg and poultry processors industry advisory committee with Clyde E. Beardslee, chief, dairy section of the food branch, as government presiding officer.

Committee members: N. R. Clark, Swift and Co., Chicago, Ill.; J. B. Collier, Jr., Ft. Worth Poultry and Egg Co., Ft. Worth, Tex.; J. L. Perry, Seymour Packing Co., Topeka, Kans.; M. J. Goodrich, Strawberry Point, Iowa; Herbert Beyers, N. W. Turkey Growers Assn., Salt Lake City, Utah; Thomas W. Heitz, Rockingham Poultry Marketing Co-op., Broadway, Va.; W. B. Loucks, Wadley & Co., New York, N. Y.; Robert F. Thurrell, Northeastern Poultry Producers Council, East Wolfeboro, N. H.; Harry J. Beernink, Washington Coop. Egg and Poultry Assn., Seattle, Wash.; Willis W. Dayton, Fairmont Creamery Co., Omaha, Nebr.; Frank A. Priebe, Priebe & Sons, Inc., Chicago, Ill.; W. F. Leimert, Tranin Egg Products Co., Kansas City, Mo.

### Poultry Equipment Rationed

Poultry equipment can be purchased only under a modified rationing plan as a result of the War Production Board's order on rationing farm machinery, issued September 15.

Temporary Rationing Order A classifies poultry equipment in Group B. It includes incubators, floor brooders, battery brooders, growing batteries, laying batteries, feeders, waterers, and other equipment. While purchasers of heavy farm machinery in Group A must secure a "certificate of purchase" from the county rationing committee before they can make a purchase, poultry raisers have only to fill out a form, certifying as to their need for the equipment during the remainder of 1942, and present it to the poultry equipment dealer who is required to file it in case it is called for.

The form is worded as follows:

To (Name of Dealer)
(Address of Dealer)

I hereby certify that the farm machinery and equipment described below is necessary to handle my production during the remainder of the calendar year 1942, including increased or new production planned and needed as a contribution to the current agricultural need: (Description of machinery and equipment)

(Signature of Purchaser)
(Address of Purchaser)
(Date)

As the order now stands on poultry equipment, it is more or less of a nuisance regulation in that it requires this form to be filled out. Whether poultry equipment rationing will be handled differently will be known definitely when Temporary Rationing Order A expires on November 1, 1942, and a permanent order is put into effect.

### Less Eggs for Civilians

While the Agricultural Marketing Administration expects the prospective supply of eggs next year to be equal to the last 12 months, it believes that rising incomes will push the demand for eggs beyond the civilian supply. Military and lend-lease requirements will absorb any increase in egg production.

A good guess now is that there will be full-scale rationing of eggs in another six to eight months, the only solution possible when there are not enough eggs to go around.

### New Wheat Purchase Program Announced

Wheat damaged by fungus such as Black Point, or which is sprout-damaged, will be purchased by the Commodity Credit Corporation at minimum prices of 13 cents below 1942 corn loan values but 4 cents above the 1941 loan value. An additional discount of 1 cent per bushel for each 1 per cent damage in excess of 7 per cent will be made.

No wheat grading musty, sour, weevily, or heat damaged will be bought, but in some instances wheat grading No. 4 and 5 will be purchased. At present, all purchases will be made through the Minneapolis office of the CCC, says the announcement issued September 24.

### Packing Fish Oil in Steel Drums Restricted

Use of either new or used steel drums to carry fish oils, when such drums have been purchased by the manufacturers after September 14, has been prohibited by the WPB. Drums already on hand may be used.

About 200 food, chemical, and petroleum products are included in a list of materials not to be packed in drums after 60 days from September 14. About 35 items were put under the ban with fish oils.

### No Action on Equipment Quotas

No word has come from the War Production Board as to the quotas which will be established on the manufacture of poultry equipment for 1942-43, but Hatchery Tribune in its October issue reports a rumor to the effect that quotas will be approximately 50 per cent of what they were this year.

One of the fears of poultry industry leaders is that the War Production Board in setting quotas will fail to take into consideration the extent to which many manufacturers have eliminated or reduced the amount of metal required in their equipment through redesign and the substitution of less critical materials. Quotas this year were based upon number of "units" made rather than on "metal poundage."

But even with substitution of materials, manufacturers report that very high priority ratings are necessary in order to obtain presdwood, plastics, and other materials developed through inventive genius. So the prospects of much new poultry equipment being available look rather slim at this time.

### Egg and Poultry Prices Frozen

Following signing of the new Cost of Living Stabilization Bill, President Roosevelt on October 3 directed Leon Henderson of OPA to consult with the Secretary of Agriculture immediately to establish "ceiling prices for eggs, chickens, butter, cheese, potatoes, flour and such other foods as can be controlled under existing laws."

The Office of Price Administration on October 4 froze prices for 60 days at their highest level charged to the seller during the period September 28 to October 2. White Special eggs had reached 49 cents at New York, and retail store prices in many instances were running 68 to 70 cents a dozen.

What procedure will be followed in determining egg prices in the future is still to be worked out, the multiplicity of grades now in existence posing quite a problem to the government men who have to deal with the problem. In Chicago on September 28, prior to passage of the bill, W. D. Termohlen of the Agricultural Marketing Administration asked the National Poultry, Butter and Egg Association to appoint a committee to give expression to different views on grades and standards to be used in connection with price regulations.

As the situation now stands, the Office of Price Administration, working with the Secretary of Agriculture, will determine whether the ceiling prices for eggs and chicken are to be raised or lowered, but prices can fluctuate freely below the limits which are set.

### Another Case Shortage Seen

Although the egg case shortage of last spring and early summer has largely corrected itself and army camps, in some instances, have had trouble finding buyers for used cases accumulated as a result of better conservation methods, another and possibly more serious egg case shortage is expected to develop in 1943.

The shortage of nails will be the chief factor in cutting down on the manufacture of wood cases, but lack of help in the lumber camps is another reason. Fewer egg cases will be available, therefore, to handle an expected increase in volume of eggs in the early part of 1943.

Following a meeting held in Harrisburg, Pa., September 24 and 25, the National Poultry Defense Committee issued the following statement:

> "Due to the shortage of critical materials used in the manufacture of egg cases, the National Poultry Defense Committee warns the industry to exercise greater care to protect the present supplies of wood cases. The committee further suggests that along with conservation of wood cases, increased used be made of fibreboard and corrugated cases, which have proven satisfactory substitutes."

Many egg receivers have strong prejudices against accepting eggs in fibreboard and corrugated cases, but when the wood case shortage develops, there will be no other way to get eggs to market. If manufacturing facilities on these substitute cases can be expanded before the serious need develops, there is less likelihood of eggs remaining on the farm and spoiling.

### Manpower Shortage Grows

The U. S. Bureau of Agricultural Economics in its annual poultry and egg outlook report, issued September 23, predicts a 6 to 8 per cent increase in egg production in 1943 over this year.

While there should be an increase in egg production in the first half of next year as a result of the great increase in pullets housed this fall, there is a growing belief that farm production hit its all-time peak this year, that further increases will be impossible because of the shortage of labor. In the poultry industry, this shortage is being felt on both farms and in hatcheries.

Competition from industry has taken away much farm help, because no farmer can meet war industry wages, but further draining of manpower from the farms will occur as the Army expands its forces. The present Army is less than half the size which it is expected to reach by the end of 1943. Draft boards required to furnish larger quotas of men are turning down most of the deferments asked on farm help.

Early returns on a survey of International Baby Chick Association members indicated that only five out of 75 hatcheries expected to maintain production. Four plants were closing for lack of skilled help. Older men and women were being taught to take over many jobs. A shortage of qualified chick sexers will reduce the number of sexed chicks available.

Secretary of Agriculture Claude R. Wickard told the House Agriculture Committee that consideration would have to be given to national labor service legislation as a means of keeping the farms manned with enough workers.

The National Poultry Defense Committee, following a meeting at Harrisburg, Pa., on September 24 and 25, made the following recommendations and urged immediate action:

1. That the proper federal agencies be authorized to require essential year-round farm workers, including those of hatcheries and processing plants, to remain in their present positions until such time as the necessary workers be trained and experienced to carry on this work satisfactorily.

2. That there be retained on every farm and in each hatchery, and processing plant, for the duration of the war, the necessary persons with managerial ability which will make it possible to carry on efficient production and training operations. Emphasis must be given to the necessity for skilled workers to perform several of the jobs on poultry, turkey and broiler farms, hatcheries and processing plants, and to the fact that considerable time is required to obtain this skill.

3. That responsible representatives of the military, industrial, and agricultural groups proceed immediately to formulate a program that will properly balance and allocate available manpower to our Armed forces, agriculture and its processing agencies, and to industry for the most effective conclusion of the war.

Producer employers who wish to seek deferment for farm workers should ask for Selective Service Form 42A from the local draft board.

With food needs much greater in 1943, the likely outcome is general rationing of most foodstuffs, and this is bound to include eggs and poultry eventually.

## Gasoline for Some Feed Salesmen

Feeds for poultry and livestock are commodities necessary to maintain production and are considered productive equipment, says Feedstuffs in its issue of October 3, reporting an interpretation by OPA to the American Feed Manufacturers Association regarding additional gasoline for feed salesmen.

The interpretation is based upon section 1394.506 of the gasoline rationing regulations, and the applicant must prove that he is engaged in the sale of "productive equipment" for farms. Employers having salesmen eligible for preferred mileage should apply to their local rationing board which will determine whether or not the applicant can have more gasoline.

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# Poultry and Egg Outlook for 1943

*Condensed from Poultry and Egg Situation*

NUMBERS of layers on farms declined about 9 million head from July to August

than last to provide adequate housing space for laying birds this winter.

The average number of eggs laid per bird in August continued the largest on record and the total output of eggs was about 13 per cent over a year earlier. Total egg production was 16 per cent larger in the first 8 months this year than last. Increases by regions in the January-August egg production were as follows: North Atlantic States, 8; East North Central States, 12; West North Central States, 24; South Atlantic States, 16; South Central States, 19; and Western States, 9

were up about 40 per cent, for a total equivalent of 2.7 million cases. The quantity of shell and frozen eggs earmarked for drying in fulfillment of dried egg contracts for delivery to the FSCC was equivalent to about 5.3 million cases.

### Dried Egg Production Heavy

The Department of Agriculture purchased about 185 million pounds of dried egg from January 1 to mid-September. On September 1, com-

U. S. Department of Agriculture, Bureau of Agricultural Economics
(The Poultry and Egg Situation, September 1942)

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# Poultry and Egg Outlook for 1943

*Condensed from Poultry and Egg Situation*

NUMBERS of layers on farms declined about 9 million head from July to August this year, compared with a decline of about 4 million head in the corresponding period in 1941. This heavier movement was accompanied by a large increase in receipts at midwest primary markets. In August, receipts at these markets averaged 44 per cent larger than last year. Heavier marketings of fowl in recent weeks reflect delayed sales of hens, rather than liquidation of laying flocks. In earlier months, farm marketings of fowl were exceptionally light.

In August, numbers of layers on farms were 13 per cent larger than in August 1941, compared with a 14 per cent increase in preceding months. With a large number of pullets to be added to laying flocks, more old hens may be sold this fall than last to provide adequate housing space for laying birds this winter.

The average number of eggs laid per bird in August continued the largest on record and the total output of eggs was about 13 per cent over a year earlier. Total egg production was 16 per cent larger in the first 8 months this year than last. Increases by regions in the January-August egg production were as follows: North Atlantic States, 8; East North Central States, 12; West North Central States, 24; South Atlantic States, 16; South Central States, 19; and Western States, 9 per cent.

## Storage Eggs Reduced

The net withdrawal of all eggs in storage during August was the equivalent of 1.5 million cases. Withdrawals in August 1941 were about a half million cases. Use of eggs for drying is responsible in large part for the heavier withdrawals this year in the face of continued heavy production. The equivalent of about 470,000 cases of storage eggs were used by egg driers during August, a little less than 25 per cent of the total quantity of all eggs used by driers.

On September 1, stocks of shell eggs were 10 per cent larger than last year and stocks of frozen eggs were up about 40 per cent, for a total equivalent of 2.7 million cases. The quantity of shell and frozen eggs earmarked for drying in fulfillment of dried egg contracts for delivery to the FSCC was equivalent to about 5.3 million cases.

## Dried Egg Production Heavy

The Department of Agriculture purchased about 185 million pounds of dried egg from January 1 to mid-September. On September 1, com-

U. S. Department of Agriculture, Bureau of Agricultural Economics
(The Poultry and Egg Situation, September 1942)

mitments for delivery of dried eggs to FSCC in the last 4 months of the year totaled 65 million pounds. Considerable quantities of dried egg also are being produced for the military forces. Egg drying facilities have been operating at or near capacity to supply all requirements. Production in August was about 21 million pounds, and in the first 8 months of the year was 151 million pounds.

### Egg Prices Advance

Wholesale prices for eggs at Chicago in mid-September were little different from a month earlier. Wholesale prices at New York City, however, were increased as much as 6 cents per dozen for some higher grade eggs, and Extras at San Francisco were increased about 5 cents per dozen. In mid-August, the average price received by farmers for eggs in the United States was 32.2 cents per dozen. This was 102 per cent of the parity price and was 20 per cent higher than the price in mid-August 1941.

The average retail price of strictly fresh eggs in 51 cities, as reported by the Bureau of Labor Statistics, rose from 46.1 cents in July to 51.7 cents in August. The lowest price reached this year was 39.4 cents in April. In November last year, retail prices reached a seasonal high of 51.9 cents per dozen.

Farm marketings of both fowl and young chickens have increased in recent weeks and total receipts of live poultry at midwest markets in early September were nearly twice those of a year previous. Receipts of young stock have increased each week since early June, and since July 1 have averaged about 50 per cent larger than last year. Receipts of dressed poultry at four markets also continue larger than last year. These large marketings reflect the 10 per cent larger number of chickens raised this year and average weights are also heavier.

Reflecting the heavier farm marketings of poultry, storage stocks during August increased relative to a year earlier. The net into-storage movement was about 7 million pounds, compared with 4 million pounds in August 1941. On September 1, total stocks were about 2 per cent larger than a year earlier and were the largest on record for that date. The heavy movement of young chickens into storage accounted for most of the increase.

The average price received by farmers for chickens in mid-August was 19.6 cents per pound, 113 per cent of parity. From mid-August to mid-September, prices of dressed roasters at New York City declined slightly. Prices of dressed light young chickens and dressed fowl were steady or increased slightly. Prices of individual classes of live poultry at Chicago, in general, were steady and for a few classes prices advanced somewhat. At San Francisco, prices of live young chickens declined and prices of fowl advanced moderately.

In mid-August, the average retail price of roasting chickens in leading cities of the country was 42.0 cents per pound. Prices of roasters both at retail and at wholesale have increased each month since last November.

### Chicken and Egg Outlook

Largely because of favorable egg prices in the past year, the demand for chicks for pullet production was unusually strong last spring. Farmers raised about 10 per cent more chickens on farms this year than in 1941. It is likely that sales of chickens from farms plus those consumed on farms will be 12 per cent larger than last year, or about 660 million head. This estimate allows for loss in birds that were on hand January 1, and a prospective 7 per cent increase in numbers on farms by next January 1. Sales from farms will be 16 per cent to 18 per cent larger than in 1941. Much of the increase will take place in the last quarter of the year, since marketings in the summer were on a reduced scale.

Relationships between young chicken prices and feed prices have encouraged feeding to heavier weights than usual. Since old hens will constitute a larger proportion of sales this year than in 1941, the average weight per bird slaughtered probably will be significantly heavier than average. With commercial broilers and non-farm production added to the slaughter of farm chickens, total production of chicken meat in the United States may be about 15 per cent larger than last year. This will provide the largest total and per capita supply on record.

### Meat Demand Strong

Although production of beef, pork, lamb, and mutton in 1943 will be the largest on record, the prospective total demand from civilians, lend-lease, and the armed forces, at ceiling prices, exceeds the likely supply by about 3 billion pounds. This shortage will increase the demand for chicken, and, as a result, chicken prices are likely to continue at levels favorable to farmers. Should ceilings be established on chicken prices at about present levels, the stronger demand would be reflected in the desire of consumers to take larger quantities than they would if prices continued to advance. The relationship between prices of young chickens and feed costs probably would continue favorable for farmers even though ceilings were established, since advances in feed prices in the next year will be limited by the record supply of feed.

### Broiler Output Up

In response to higher prices, production of commercial broilers is continuing to increase relative to a year ago. The number of chicks hatched by commercial hatcheries, mostly for broiler production, was

17 per cent, or 3 million head, larger this August than last. On September 1, the number of chicks booked for future delivery was 32 per cent larger than a year earlier.

These data indicate that commercial broiler production is increasing more than usual for this time of year. Although the seasonal peak in marketings of commercial broilers usually occurs in April or May, operations for 1943 are likely to be more nearly constant than ever before, since prices probably will be favorable throughout the year.

### Fall-Hatched Chicks Encouraged

To augment the prospective supplies of meat for civilian use, the Secretary of Agriculture announced on September 16 the desirability of raising fall-hatched chicks on general farms. By utilizing existing brooder houses and other production equipment not normally used to capacity during this season, a considerable number of fall hatched chicks could be produced. This program could be carried out especially well in Southern sections where fall hatched birds could be well feathered before cold weather comes.

By starting about half as many chicks per brooder house as practiced in raising chicks for laying purposes, young birds can be raised to marketable size of not less than 3 pounds, live weight, without overcrowding or use of additional houses.

For efficient operation of this program, the following five-point plan was included in the announcement by the Secretary: (1) Increased hatchery outputs at this season in line with demand for chicks, (2) Adoption of a management program to meet cold weather production problems, (3) Feeding to utilize feed wheat and vegetable oil meals of which there are greatly increased supplies, (4) Sanitation, and (5) Utilization of existing equipment and facilities.

### Chicken Prospects Good

Prices of both eggs and chickens are likely to continue favorable relative to feed costs well into 1943. As a result, some further increase may occur in the number of chickens raised on general farms. In some sections of the country, especially central States in the Midwest, poultry housing facilities will be filled to capacity from this year's chicken crop. But in many areas, there is room for some further increases. It is likely that in all areas, at least as many chickens will be raised as in 1942 to provide for normal replacements in laying flocks. In addition, the numbers raised after the normal hatching season for meat prouction probably will be large.

### Egg Production to Increase

With about 10 per cent more chickens raised on farms this year than in 1941 and a continued favorable egg-feed price ratio in prospect, numbers of layers on farms at the beginning of 1943 will be from 6 to 8 per cent larger than at the beginning of 1942. The rate of lay per bird in 1943, with favorable prices in prospect, probably will be little different from the rate for 1942, assuming normal weather. The increase in total egg production next year over 1942 thus may be about the same as the increase in layers. Supplies for civilian consumption may be little different from last year, however, since increased quantities probably will be needed for lend-lease, armed forces, and hatching.

Many of the eggs purchased for lend-lease and armed forces will be in dried form. The capacity of drying plants now in operation is about 315 million pounds, based on 300 days operation of 20 to 22 hours per day. In addition, to cover anticipated requirements, materials have been allocated for expanding facilities another 110 million pounds.

### Egg Prices Favorable

The effect on prices of any larger supply of eggs for civilians next year is likely to be more than offset by stronger consumer demand. If price increases are limited by Government control, the increased demand will be reflected in a desire to take larger quantities than otherwise.

Since parity prices for eggs are adjusted for seasonal variation, a further increase in egg prices would be possible during the remainder of 1942. In mid-August the parity price for eggs was 31.7 cents per dozen, whereas the average price received by farmers for eggs was 32.2 cents per dozen. If the index of prices paid by farmers, including interest and taxes, remains at the August level of 152, parity prices for eggs in the United States during the last 3 months of this year would be as follows: October 41.5 cents, November 46.1 cents and December 40.2 cents.

### 1942 Poultry Income at Peak

Because of high farm prices for chickens and eggs—the highest since 1929 and 1920 respectively—and with large sales, cash income from poultry in 1942 will be the largest on record. The increase in income has been much more than sufficient to offset increased production costs. In 1943, because of larger volume and higher average prices than in 1942, cash income will establish another new high. Income from turkeys will be up considerably this year over last, primarily because of higher prices.

### Feed Supplies and Prices

Supplies of feed concentrates, including feed wheat and the large supplies of byproduct feeds in prospect, are estimated to be 9 per cent above the record supply in 1941-42 but to be about the same in relation to the number of livestock on farms. The corn supply is likely to be about

3.5 billion bushels, by far the largest on record.

Supplies of animal protein feeds including skim milk probably will not be any larger in 1943 than in 1942 and the supply of these feeds per animal unit will be the smallest in recent years. Supplies of oilcakes and meals, on the other hand, are likely to be about 40 per cent larger in 1942-43 than in 1941-42. Some producers of hogs and poultry will find it necessary to increase the utilization of these feeds to offset the deficit of tankage, fish meal. and other animal protein feeds.

Feed grain prices have increased about 15 per cent during the past year and about 75 per cent since the beginning of the war. Prices of by-product feeds and mixed poultry feeds have increased similarly. Some further increase in feed prices is in prospect for the coming year, but the extent of increase will be limited by large supplies of feed, including feed wheat.

### More Poultry Production

Poultry production probably could be increased much further. Meat supplies could be augmented by as much as 5 or 6 pounds per capita, dressed and drawn basis, annually, per person. Some increase in output of poultry meat is likely as a result of the price incentive alone, and further increases could be made by additional effort.

A material increase in poultry production could be accomplished by utilizing more completely existing poultry raising facilities. In the past, commercial broiler operations have been heaviest in the winter and spring when sales of chickens from general farms are light and prices are at a seasonally high level. Sales of commercial broilers have been lowest, seasonally, in the late summer and early fall.

Since birds raised under the specialized conditions of commercial broiler production reach marketable size in about 12 weeks, as many as 4 broods may be raised a year. Producers in some localities have raised only one brood a year while in other sections operations have been carried on at near capacity. In 1941 as a whole, 163 million broilers were produced, but existing facilities probably were not operated much beyond 50 per cent of capacity. By operating at full capacity, 275 million broilers, or more, could be produced in a year. A necessary condition to continued full operation would be the reduction or elimination of seasonal variation in broiler prices.

Increased production of chickens on general farms, over and above that normally resulting from raising pullets, also could be achieved. Such chickens would be, for the most part, raised as an extra brood before or after the normal brood for flock replacement purposes. By such a procedure the birds would be marketed largely in seasons when marketings of that class normally are light. Increased production on general farms is most feasible in the Midwest, where feed supplies and family labor could be utilized. Much of the meat could be consumed in urban centers within the region.

### Increase Turkey Output

The number of turkey producers, and turkey production, could be increased in western sections of the Wheat Belt. In this region, normal labor demands vary greatly between seasons, and supplies of grain are ample. Severe competition from hogs for feed and labor does not exist as in the Corn Belt, where turkey production this year has been below the 1941 level.

Turkey production could be increased also by reducing the rate of mortality among growing poults. Overcrowding in particular should be avoided. Starting a large number of poults in one lot may result in small total output rather than an increase.

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# Progress of Officially Supervised Pullorum Disease Control

By A. W. MILLER
U. S. Bureau of Animal Industry

*Release of U. S. Department of Agriculture*

THERE has been a progressively increasing number of breeding birds officially tested during the 22-year period, with the exception of 1937-38. The greatest increase in the number of birds tested in any one year occurred in 1941-42 when the increase in number tested was 4,745,203 birds which was 38.85 per cent more than during 1940-41.

The total number of birds tested during this past year was 97 per cent of the total number tested during the first 15 years of official testing work, and yet with this large increase, the total number of reactors was only 53 per cent of the number removed from breeding flocks during the first 15 years of official testing.

The volume of official testing has increased very rapidly since the National Poultry Improvement Plan was placed into operation in 1935-36. During that year, only 48 per cent of the total number of birds officially tested were participating in the plan; whereas, this past year 88 per cent of all official testing was conducted under the supervision of the plan. Although official testing in the plan is still optional, 96.1 per cent of all the birds under plan supervision this past year were officially tested.

In the fall of 1943, participation in the pullorum phase of the plan will be a perequisite to participation in the breeding phase of the plan.

**Summary of organized pullorum-testing work with chickens under official supervision in the United States**

| Testing year | States reporting | Birds tested (first test) | Reactors | | Range of State averages for per-cent of reactors | | % increase in number tested over previous year |
|---|---|---|---|---|---|---|---|
| | | | Number | Percent | High | Low | |
| 1920-21 | 2 | 36,118 | 3,963 | 10.97 | 12.50 | 7.66 | |
| 1921-22 | 2 | 32,605 | 4,388 | 13.46 | 22.30 | 12.65 | 9.74 |
| 1922-23 | 2 | 40,260 | 3,406 | 8.46 | 12.80 | 7.60 | 23.48 |
| 1923-24 | 2 | 72,780 | 4,137 | 5.68 | 6.53 | 1.85 | 80.77 |
| 1924-25 | 3 | 88,905 | 2,434 | 2.74 | 5.70 | 1.28 | 22.16 |
| 1925-26 | 7 | 246,032 | 8,807 | 3.58 | 7.60 | 2.13 | 176.74 |
| 1926-27 | 10 | 568,028 | 29,047 | 5.11 | 20.00 | 1.47 | 130.88 |
| 1927-28 | 14 | 1,116,764 | 70,760 | 6.33 | 21.00 | 1.60 | 96.60 |
| 1928-29 | 15 | 1,196,261 | 65,805 | 5.50 | 19.00 | 1.22 | 7.12 |
| 1929-30 | 18 | 1,627,133 | 90,036 | 5.53 | 14.53 | .67 | 36.02 |
| 1930-31 | 18 | 2,057,968 | 119,872 | 5.82 | 15.73 | .47 | 26.48 |
| 1931-32 | 22 | 2,274,367 | 108,328 | 4.76 | 49.10 | .49 | 10.52 |
| 1932-33 | 24 | 2,509,066 | 116,930 | 4.66 | 22.00 | .44 | 10.32 |
| 1933-34 | 24 | 2,640,366 | 99,540 | 3.77 | 13.27 | .16 | 5.23 |
| 1930-35 | 26 | 3,003,219 | 111,858 | 3.72 | 15.50 | .046 | 13.74 |
| 1935-36 | 30 | 4,322,800 | 158,511 | 3.67 | 10.40 | .004 | 43.93 |
| 1936-37 | 31 | 6,022,966 | 200,496 | 3.33 | 7.96 | .07 | 39.33 |
| 1937-38 | 33 | 5,270,477 | 170,077 | 3.23 | 18.50 | .17 | −12.49 |
| 1938-39 | 45 | 8,741,706 | 283,025 | 3.24 | 9.40 | .05 | 65.86 |
| 1939-40 | 47 | 11,105,307 | 343,861 | 3.10 | 11.10 | .04 | 27.04 |
| 1940-41 | 47 | 12,214,011 | 350,887 | 2.87 | 8.90 | .002 | 9.98 |
| 1941-42 | 46 | 16,959,214 | 447,679 | 2.64 | 8.05 | .02 | 38.85 |

**Summary of organized pullorum-testing work with turkeys under official supervision in the United States**

| Testing year | States reporting | Birds tested (first test) | Reactors | | Range of State averages for per-cent of reactors | | % increase in number tested over previous year |
|---|---|---|---|---|---|---|---|
| | | | Number | Percent | High | Low* | |
| 1928-29 | 1 | 123 | 3 | 2.44 | 2.44 | | |
| 1929-30 | 3 | 1,236 | 57 | 4.61 | 5.58 | 0 | 904.87 |
| 1930-31 | 5 | 3,020 | 105 | 3.48 | 9.4 | 0 | 144.34 |
| 1931-32 | 6 | 1,493 | 15 | 1.00 | 6.56 | 0 | −50.56 |
| 1932-33 | 6 | 1,035 | 1 | .10 | .45 | 0 | −30.68 |
| 1933-34 | 9 | 2,802 | 79 | 2.82 | 13.43 | 0 | 170.72 |
| 1934-35 | 8 | 6,036 | 60 | 1.0 | 3.3 | 0 | 115.42 |
| 1935-36 | 9 | 13,541 | 152 | 1.12 | 2.8 | 0 | 124.34 |
| 1936-37 | 14 | 32,337 | 488 | 1.51 | 4.04 | 0 | 138.81 |
| 1937-38 | 16 | 49,361 | 950 | 1.92 | 3.68 | 0 | 52.65 |
| 1938-39 | 25 | 132,773 | 2,518 | 1.90 | 3.19 | 0 | 168.98 |
| 1939-40 | 25 | 305,925 | 7,556 | 2.47 | 9.84 | 0 | 130.41 |
| 1940-41 | 30 | 332,797 | 3,844 | 1.16 | 2.16 | 0 | 5.55 |
| 1941-42 | 30 | 432,324 | 4,814 | 1.11 | 4.78 | 0 | 29.91 |

*During each of the last 12 years at least one State found no reactors in all of the turkeys tested.

Since the plan has been in operation, there has been considerable improvement in the efficiency of whole-blood, stained antigen testing, due to better training and supervision of testing agents. Also, the antigen used for this test has been improved with the introduction this past year of the new T. G. antigen, which facilitates a more accurate interpretation of the test.

During the past year approximately 70 per cent of all official pullorum testing of chickens was conducted by the rapid, whole-blood, stained antigen method, 28 per cent by the tube method, and 2 per cent by the plate serum method.

### Pullorum Control in Turkeys

The results of this testing work reported by official state agencies are summarized in the table entitled "Summary of organized pullorum-testing work with turkeys under official supervision in the United States."

The first report of results from testing turkeys was for one state in 1928-29, while 30 states reported on turkey testing during 1940-41 and 1941-42. Although the number of turkeys officially tested in breeding flocks is still comparatively small, this number has increased considerably during the past four years and, during the past three years, has shown a steady decrease in per cent of reactors.

## *Post-War Egg Consumption*

We know that Government buying of eggs for the armed forces will shrink rapidly when hostilities cease. Because of Europe's post-war needs, overseas shipments will probably taper off rather slowly, so that no very sharp adjustment to peace-time conditions in the American poultry industry will become necessary.

The effect of the Government's efforts to educate our civilian population to eat more eggs per capita than it has in the past remains to be seen. But no matter how the post-war situation shapes up, the kind of job each individual poultryman is doing will have a lot to do with his success in meeting that post-war situation. The more eggs his hens lay and the higher the average market quality of those eggs, the higher will be the average money returns per case. The better the job of feeding, culling, etc., the lower will be production costs per dozen.

Good egg production is a product of good breeding. It costs no more to rear well-bred stock than poor stock. But it usually pays much better, as authoritative records show.

—J. E. Dougherty, Nulaid News, August 1942.

# Finishing Turkeys for Market

### By G. P. PLAISANCE

*Reprinted from Turkey World*

AT this season of the year, growers are making plans for fattening (perhaps we should say finishing) their turkeys. Since the fattening or fleshing of turkeys has so much to do with their appearance, and likewise with their market price and grading, which determines eye appeal to the consumer, it is very important that all turkeys be finished properly before they are marketed.

Oftentimes, turkeys that are not finished properly are difficult to dress. Invariably, when they are finished properly, they dress much easier and few pinfeathers are in evidence. A well finished turkey naturally has a good coverage of fat that is well distributed over the body, thus causing that turkey to roast better and look its very best when placed on the table, regardless of whether it is in a home, hotel, restaurant, or club.

## Getting Premiums

It should be the aim of every turkey grower to finish his turkeys, regardless of whether the turkeys are to be marketed alive or dressed. Oftentimes, the buyers of live birds will stretch a point and give a little extra money for well finished turkeys. A grower that has the reputation of producing good quality birds always gets the attention of the buyer, with the ultimate result that after those turkeys are dressed, the man who buys them can get more money for them, and, consequently, is willing to pass that extra money on to the grower.

There are many theories about turkey feeding and fattening. Of course, everyone thinks his method is the best. In a general way, the turkey is a wise old bird, and if all necessary ingredients are provided, he can do a fine job of balancing his own feed all the way through the growing period. As the season advances, he will gradually eat less and less of the protein balancer part of his ration and more and more of the grain and other fattening ingredients. Some feel that no special fattening program is necessary and that the turkey will finish out satisfactorily without a special fattening diet near the end of the growing period. However, many turkey authorities, including the writer, are of the opinion that a more rapid and better quality finish can be obtained with a special fattening diet.

Poultry-Dairy Publishing Co., Mount Morris, Ill.
(Turkey World, September 1942)

If turkeys are to have a special fattening ration, they usually are ready to start on it when they are about 22 weeks old, with the result that after four weeks of fattening a large percentage of those turkeys can be sold. This is true particularly when the turkeys have been full-fed all during their growing period. If they have been full-fed during the growing period, they have taken on a certain amount of fat, and consequently do not have to be on a finishing feed quite so long.

## Market at 26 Weeks

Usually turkeys that can be marketed around 26 weeks of age – 6 months—are the most profitable. In some instances, it is necessary to carry them an extra week or two. Many factors are influential. For instance, if the weather is very warm, turkeys do not eat so much, and consequently do not gain so rapidly. For some reason, cool weather causes increased appetites and elimination of pinfeathers. It is a much more difficult job to fatten turkeys in late September or October than it is to fatten them for the Thanksgiving market; and it is much easier to have turkeys show a lot more finish when they are marketed at Christmas than at Thanksgiving.

As a rule, especially in large flocks, it is difficult to have all the turkeys ready for market at the same time. Perhaps 900 or 950 will be ready and there will be 50 to 100 turkeys out of each 1,000 which, for some reason, do not carry the finish that will rate them as prime birds.

It is always best to pick over your birds at market time and send only those that in your estimation would grade as prime, keeping that other 5 or 10 per cent so that they can finish out properly. Those few birds with one or two extra weeks will improve rapidly. Usually those slow finishing birds are timid. They do not come up to the feed trough and eat as regularly as many of the birds. When they have an opportunity to shift for themselves in a small flock, after the big aggressive birds have been marketed, they will put on flesh rapidly and can be marketed one or two weeks later and grade as prime.

## Finishing in Early Fall

During September and October in many parts of the country, the days are very warm. In many sections, warm nights are common. In weather like this, the birds do not have a good appetite—at least they do not eat nearly as much as they would eat if the weather were cool. There is a tendency for the birds to eat very little yellow corn in weather of this kind. As we all know, yellow corn, if supplemented properly with the right kind of protein ration, is one of the best fattening feeds for turkeys. But all will agree that the turkeys "back away" from corn when the weather is warm. With government wheat as plentiful and as cheap as it is this year, wheat can be used to make up part of the ration. But wheat will not produce quite the finish that can be produced with corn.

Many growers have found that turkeys may be induced to eat more corn in warm weather if the corn is soaked or mixed with milk or a mixture of commercial condensed milk and water. In fact, soaking or mixing with milk will increase the palatability of any grain. Western growers are especially fond of soaking barley in milk. It is best to crack or crush grains to be fed in this manner.

When the weather is especially warm, good heavy whole oats is one of the grains most liked by turkeys and should be fed liberally, along with proper supplementation of protein products.

There is one disadvantage of feeding oats, wheat, and grains of this general class in that they are practically devoid of vitamin A. Of course, if the birds are on a good succulent green range of clover or alfalfa—in fact most any good succulent green grass—then this range can supply the vitamin A. But in dry weather, in the absence of green food, when wheat, oats, kaffir corn, and barley, alone or in combination, are the principal grains, regardless of whether these grains are fed with home mixtures or commercial concentrate products, the lack of vitamin A can lead to, or tend to lead to sinusitis. Since yellow corn is so rich in vitamin A, it can supply that lacking vitamin which is so necessary. But, of course, if the weather is hot, even if the corn is in the trough, it will not alleviate the trouble if it is not consumed by the birds.

A number of commercial firms make a special fattening ration for turkeys that does contain sufficient vitamin A. This feed usually is made in pellet form and because of the thorough blend and the fact that the feed is very palatable, it is possible to get a high percentage of yellow corn in that pellet with the result that the birds eat it regularly and in large quantities. Therefore, they make rapid gains even in warm weather, and the turkeys carry a good finish when they are dressed.

### Fattening Thanksgiving Turkeys

As stated above, in most climates it is much easier to fatten turkeys for the Thanksgiving market than it is for the earlier markets. During this season, turkeys usually will consume considerable corn because the weather is cool. As a rule, it is best to crack or crush the corn, even though the particles are large – the turkeys eat it more readily. As a rule, turkeys should not be fed immature corn. If it is necessary to feed current year's corn, it should be well matured. Only a small amount of new corn should be used at first and the change made gradually. Old corn is much preferred.

Turkeys that are being fattened at Thanksgiving time can have a large percentage of their grain ration in the form of cracked yellow corn. Some oats can be fed. As a rule, Thanksgiving turkeys can receive 65 to 70 per cent of the grain in the form of yellow corn and 30 to 35 per cent in the form of whole oats. Turkeys being fattened in late September and October will seldom eat more than 25 to 30 per cent of their grain ration in the form of yellow corn. The balance of the grain ration can be oats, or oats and wheat. In sections where they are common, barley, grain sorghums, spelt, and emmer are very satisfactory.

### Supplement Your Grains

It is not economical to attempt to fatten turkeys on grain alone. The grain always should be supplemented with growing mash or special fattening supplement.

During September and early October, perhaps 50 or 60 per cent of the daily ration should be a palatable supplement, and the other 40 or 50 per cent can be made up of grain, principally heavy oats, some wheat and a small amount of corn. As stated above, when other grains are common, they can be used in almost any combination.

At Thanksgiving time, a smaller percentage of supplement can be used and a larger percentage of grain can be consumed. The scientific reason for this is that the birds require more body heat when the weather is cool, and since carbohydrates—grain feeds — produce body heat and fat, they will be consumed to a great extent by the turkeys.

### Fattening at Christmas Time

In most climates, the period between Thanksgiving and Christmas is the easiest time of the year to fatten turkeys, because of the cold weather. Plenty of yellow corn, along with a good protein supplement, will produce excellent results. This time of the year, the turkeys usually will eat corn very readily and corn can be used as the chief grain during that time.

In feeding turkeys, it is always best to keep feed before the birds in hoppers at all times. This is true especially during the fattening period. It gives the timid bird an opportunity to get food when the aggressive ones are away from the feeding troughs.

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HAM and eggs will go with our boys in service, no matter where they are or under what conditions they are living, says a statement by the H. J. Heinz Company, Pittsburgh, Pa. This old favorite breakfast dish is now being chopped and canned in the form of Army rations. It is said to retain the flavor and food value of freshly prepared ham and eggs.

# POULTRY RESEARCH

## Cane Molasses for Growing Birds

The addition of cane molasses to a good all-mash growing ration did not give any better results than the same ration without molasses, although 4 per cent molasses did stimulate early growth, report W. H. Ott, R. V. Boucher, and H. C. Knandel of Pennsylvania State College in Poultry Science (Vol. 21, No. 4).

Growth of the second generation on 4 per cent molasses was slightly superior to that of the second generations on 0, 2, and 6 per cent molasses. Feed efficiency was highest on the no-molasses mash.

## Vitamin D Destroyed by Common Feed Ingredients

When an oil carrier is distributed on such common poultry feed ingredients as oyster shell flour, dried whey, dried skimmilk, milk sugar residue, crystalline sugars, sand, and mineral mixtures, vitamin D activity is lost rapidly, report James C. Fritz, Wallace F. Archer, and Donald K. Barker of the Borden Company's Nutritional Research Laboratories at Elgin, Ill., in Poultry Science (Vol. 21, No. 4).

Cereals and other absorbent carriers tend to protect added vitamin D, but observations on mixed feeds indicate that there is a slow but definite loss of the vitamin when feeds are stored. Destruction, which seems to be inherent in several forms of the vitamin, is probably due to oxidation by air.

Stabilization procedures are being developed, and until further information is available it seems advisable to use cereals or other absorbent carriers, rather than mineral mixtures or milk compounds as carriers for vitamin D.

## Vitamin $B_6$ Requirements of Young Chicks

Young chicks required a minimum of 275 to 300 micrograms of vitamin $B_6$ (crystalline vitamin $B_6$ hydrochloride) per 100 grams of ration for satisfactory growth, report G. M. Briggs, Jr., R. C. Mills, D. M. Hegsted, C. A. Elvehjem, and E. B. Hart of the University of Wisconsin in Poultry Science (Vol. 21, No. 4).

Deficiency of the vitamin results in poor feed utilization, reduced growth and feed consumption, general muscular weakness, and death.

## Utilization of Protein Concentrates

When fed alone, the percentage protein utilization of protein concentrates was found to be: soybean oil meal, 76.0; dried whole egg, 74.2; casein, 58.0; menhaden fish meal, 57.0; meat scraps, 41.9; and corn gluten meal, 28.7, report A. H. Van Landingham, T. B. Clark, and B. H. Schneider of the West Virginia Agricultural Experiment Station in Poultry Science (Vol. 21, No. 4).

Utilization of proteins in a practical growing ration averaged 76 per cent, while combinations of the various supplements studied were utilized as follows: soybean oil meal and meat scraps, 73; soybean oil meal and menhaden fish meal, 68; soybean oil meal and corn gluten meal, 68; menhaden fish meal and corn gluten meal, 60; menhaden fish meal and meat scraps, 52; meat scraps and corn gluten meal, 47.

## Vitamin A Storage by Growing Turkeys

That vitamin A is stored in the livers of growing poults is shown by the fact that birds on an A-deficient diet survived for an average time of 119 days when given one dose of shark liver oil, while others on the same diet, but not given the oil, died at an average of 38 days, reports Thomas H. Jukes of the University of California in Poultry Science (Vol. 21, No. 4).

It is concluded that a single massive dose (92,000 U.S.P. units) will protect poults against vitamin A deficiency for at least 30 days, because of this ability to store vitamin A in the liver.

## Riboflavin from Cow's Paunch

A process for converting riboflavin and other B vitamins in the cow's paunch, hitherto a packing-house waste, has been developed by E. B. Hart and Allan Booth of the University of Wisconsin. To get the concentrate, which contains from 17 to 20 micrograms of riboflavin per gram, the paunch material is heated to 194° F., pressed out, and the fluid is evaporated at a low temperature until dry.

It is doubtful that the process will be used commercially at this time, since machinery is difficult to obtain and labor is scarce. Several companies have shown an interest in the process, however.

## Phenothiazine Tolerance of Laying Hens

When one-half gram of phenothiazine per day (the recommended dosage for control of cecal worms) was fed to layers for 85 consecutive days, egg production, body weight, or hemoglobin concentration were not affected and all birds survived, report L. G. Nicholson and E. C. McCulloch of the Washington Agricultural Experiment Station in the Journal of the American Veterinary Medical Association (September 1942).

Feeding of a full gram of phenothiazine per day resulted in lower production, loss of weight, and, quite possibly, higher mortality, since but four of the six birds studied survived the 85-day test.

### Yeast-Fermented Mash and Hens' Blood Values

The feeding of a yeast-fermented mash to laying hens does not change the elements of the blood from what they are when a good ration is fed without the yeast supplement, report C. J. Hamre and J. T. McHenry of the University of Hawaii in Poultry Science (Vol. 21, No. 4).

Feeding of yeast-fermented mash in hopes that the number of red blood cells would be greater, thereby increasing the health of the birds, is not justified on the basis of results obtained in the test reported.

### Change in Color Pattern in High Producing Hen

A possible relationship between a mass of tumorous tissue and a change in color pattern in a high-producing hen, part of the North Carolina State College flock, is suggested by D. W. Gregory of that institution in the Journal of the American Veterinary Medical Association (September 1942).

After establishing a record of 319 eggs in her pullet year, the Barred Rock declined in production and laid but 65 eggs in her second year. During a three-month period before autopsy, many normal body feathers were replaced by white feathers, with others showing irregular barring and white tipping.

It is the conclusion of the author that the change in color pattern was caused by some effect of the neoplasm on endocrine secretions.

### Potatoes for Layers

Excessive quantities of potatoes in the ration, especially in combination with oats, may result in abnormal gains in weight, report H. Temperton and F. J. Dudley in the Harper Adams Utility Poultry Journal (England) for July 1942.

As much as 94 per cent of the ration of one pen was composed of potatoes, with egg production unsatisfactory and mortality high. When up to 55 per cent of the mash (7½ ounces per day) was composed of potatoes, production and body weight were not seriously affected.

### Fowl Leucosis Complex Transmitted through Egg

Fowl leucosis may be transmitted from affected parents to their progeny by way of the egg, report C. D. Lee and Charles Murray in the Iowa State College's Report on Agricultural Research for 1940-41.

The disease, in all forms, has been transmitted to healthy chicks by injection of tissue suspensions, filtrates, tissue in glycerin, whole blood, dried blood, blood plasma and washed red blood cells.

Chicks can get the disease from other chicks or from contaminated litter or soil. The incubation period is variable, generally rather long, running from four to eight months. Susceptibility is greater in younger chicks than older ones.

### Poultry Production Methods and Storage Characteristics

Preliminary evidence gained in a study of flavor changes in stored poultry indicates that the management of meat birds during the brooding and growing period, including the quality of ration used, significantly influences the ability of the birds to hold up in storage, reports G. D. McClaskey in the U. S. Egg and Poultry Magazine (September 1942) on work being done at Kansas State College.

### Phenothiazine Removes Cecal Worms

Phenothiazine, administered at the rate of one-half a gram per day for four consecutive days, removed 99.8 per cent of the cecal worms (H. gallinae) from naturally - infected chickens, report R. W. Allen, L. Oliver, and H. O. Peterson of the USDA Bureau of Animal Industry in Veterinary Medicine (October 1942).

Dosages of 0.05 and 0.1 gram per day were 12.6 and 91.7 per cent effective, respectively. It was found that phenothiazine had no serious effect on unexpelled worms. There is no evidence to indicate that the drug harmed the chickens when given at the levels used in this test.

### Source of Black Rot

The most likely source of black rot in eggs is dirt on the shell or in the water used for cleaning eggs, reports A. R. Winter of Ohio State University in the U. S. Egg and Poultry Magazine (September 1942).

Most cases of black rot were found during or following periods of warm, humid weather. Eggs removed from cool, damp cellars sweat during transportation, removing the protective bloom and permitting easy penetration of bacteria. It is suggested that the best way to prevent black rot is to produce clean eggs.

HOUSEWIVES in the lower East Side of New York City were surprised one morning recently, to find chickens and turkeys roosting on their window sills. Some, however, not too surprised to go into action, had the birds killed, dressed, and in their pots before they found that they had escaped from crates which fell off the poultry truck of Jacob Friedman, Newark, N. J., poultry dealer, according to the New York Times for September 9, 1942. Birds were recovered by Friedman, aided by six radio patrolman, a sergeant and three of his helpers, from car tops, hallways, and store fronts, but not without a considerable loss.

# A Time-Saving Method of Washing Eggs

By G. O. HALL and L. M. HURD
Cornell University

*Reprinted from "Poultry, Current Science and Practice"*

A POULTRYMAN usually attempts to remove the dirt and stain on eggs so that they will sell for a normal price. Regardless of how careful he may be, there will always be some dirty eggs. Because bacterial contamination is sure to result where careless methods of washing are used, all washing of eggs has been condemned by the egg trade. Said an official of a large organization which merchandises thousands of carloads of eggs, "until this problem has been solved and the solution has been so widely adopted that we don't have to worry at all, we are going to penalize every washed egg we can find."

It was shown at the Missouri Agricultural Experiment Station that eggs may be washed without injurious effects in a solution of sodium hydroxide (common lye). One New York poultryman has reported satisfactory results with the following labor-saving method of washing eggs in a lye solution. The dirty eggs are placed in an open-wire basket and immersed for 15 minutes in a 1 per cent solution of lye. The basket is then twirled in the solution, and the eggs are washed by the movement of the solution around them. They are then spread on a screen to dry.

To determine the efficiency of this method and the effect on interior egg quality of soaking for 15 minutes in the lye solution, a test was run at the Cornell Department of Poultry Husbandry. Of the 400 eggs of interior quality A grade or higher used, determined by candling, 200 were classified as dirty and 200 as clean. They were divided into eight lots of 50 each, and subjected to the treatments indicated in the table below.

**Summary of Treatments Used in Tests**

| Lot | Number of eggs | Condition of shell | Treatment | Holding temperature |
|---|---|---|---|---|
| A | 50 | Dirty | Washed | 58° F. |
| B | 50 | Clean | Washed | 58° F. |
| C | 50 | Dirty | Not washed | 58° F. |
| D | 50 | Clean | Not washed | 58° F. |
| E | 50 | Dirty | Washed | *Room temperature |
| F | 50 | Clean | Washed | Room temperature |
| G | 50 | Dirty | Not washed | Room temperature |
| H | 50 | Clean | Not washed | Room temperature |

*Average 68° F., range 57° F. to 82° F.

Department of Poultry Husbandry, Cornell University, Ithaca, N. Y.
(Poultry, Current Science and Practice, August 1942)

**Table 1—Average Loss in Grade at the End of:**

| Treatment | First week | Second week | Third week | Fourth week | Fifth week | Sixth week |
|---|---|---|---|---|---|---|
| Washed | 0.355 | 1.128 | 1.505 | 2.012 | 2.982 | 3.160 |
| Not washed | 0.532 | 1.145 | 1.692 | 2.042 | 3.185 | 3.375 |

**Table 2—Average Loss in Grade of Eggs Held at 58° F. and at Room Temperature***

| Temperature | First week | Second week | Third week | Fourth week | Fifth week | Sixth week |
|---|---|---|---|---|---|---|
| 58° F. | 0.393 | 0.865 | 1.333 | 1.738 | 2.835 | 3.128 |
| Room | 0.593 | 1.408 | 1.865 | 2.318 | 3.333 | 3.450 |

58° F. for the first three weeks.

## Effect on the Shell

The soiled eggs were classified as very dirty, medium, and slightly dirty. Before washing, 18 per cent were very dirty, 40 per cent medium, and 22 per cent slightly dirty. After the eggs had been soaked for 15 minutes, and washed by being twirled in the solution, 43 per cent were classified as clean, 17 per cent as slightly dirty, 18 per cent as medium, and 2 per cent as very dirty. This method is not entirely efficient. It removes most of the dirt, but does not remove all stains from badly soiled eggs. The eggs were rubbed in no way. Probably many more would have been classified as clean had they been individually washed. This method seems satisfactory for cleaning a majority of eggs that are only medium to slightly dirty.

The temperature of the water is important in the success of this method. It should always be above that of eggs. If the eggs are warmer than the water, the contents will contract and draw inside the shell any contamination on the surface.

One-half can of lye (6½ ounces), as it is purchased in the store, in 5 gallons of water makes a 1 per cent solution. One must use rubber gloves in handling the wet eggs to prevent burning his hands. Also the containers must be of glass, wood, or enamelware.

## Effect on Interior Quality

To determine the effect of washing on the interior quality of eggs in storage, the eggs were candled once a week for six weeks. Grade designations were Fancy, A, B, C, and inedible. Each grade was subdivided into a plus or minus designation, and each half grade assigned a numerical value of 0.5. Deterioration or fall in quality was determined from week to week and for the entire period.

The loss between washed and unwashed eggs for a period of six weeks was little. Eggs for immediate consumption, or to be held only a short time, may be satisfactorily washed by this method.

**Influence of Holding Temperature**

For three weeks one-half of the eggs were held at 58° F., the other half at room temperature. Room temperature varied from 57° F. to 82° F., with a mean of 68° F. From the third to the end of the sixth week all eggs were held at room temperature. Relative humidity varied from 24 to 47 per cent, with a mean of 37.5 per cent.

Eggs held at 58° F. the first three weeks maintained higher quality throughout the storage period than did eggs held at room temperature. The difference was particularly marked at the end of the second and third weeks. The figures emphasize the importance of a relatively low temperature even for a short-time storage.

At the end of six weeks, five eggs from each lot were broken and the contents observed for condition of white and unfavorable odors. In a visual score of the white, there was little or no difference between the washed and unwashed eggs. The odor of all was distinctly flat and characteristic of eggs held for a considerable time. Only one egg in the 400 showed signs of bacterial contamination.

At the last candling, 70 eggs in each group (washed and unwashed) were classified as inedible. The reason in almost all cases was stuck yolk. The white had become thin and watery and had allowed the yolk to rise and adhere to the shell membrane. Eggs with free yolks were still edible but of very low quality.

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# Overcomes Horned Owl Menace

For many years Arthur Waite, Cambridge, New York, has operated a medium scale poultry raising business. One of the earliest obstacles he had to face was the great horned owl.

These fierce birds at first appeared unbeatable, since during the long warm months when range houses had to be well ventilated or poultry stayed out of doors long into the evening, they literally stole hens and chicks by the dozen.

Shooting was difficult because of the dusk, darkness, and danger of hitting the poultry. Finally Mr. Waite noticed that the owls frequently lit or hovered around the fence posts. By setting steel jump traps on these posts, he caught thirteen of the owls, and continuing this practice, he soon had the danger under control.

—Dwight Campbell, Everybodys Poultry Magazine, October 1942.

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# Diary of a Poultryman

## By PERCY S. WHITE

Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

**Oct. 1**—These firsts of the month seem to roll around quite frequently. In fact, it is getting monotonous to find the mail box full of bills and very little residue in the bank with which to settle accounts. The pullets haven't started to lay and hen production is on the down and down. In the meantime, the young birds are eating their heads off and not putting out anything. Yes, a fat bank residue is what I need to tide me over until more productive days are here again.

**Oct. 2**—I didn't have any birds on today's sale, but in a few days I am going to cut loose with some old running gear hens. Next Monday night Walter Buss and his army of cohorts will be out to start the season's bloodtesting. It will not be the reactors they find that will swell the live market volume, but the culls removed.

**Oct. 3**—I ordered the pox vaccine, pigeon strain, in 100-dose bottles. The supply house listed it as 100-dose vials, but in the horse and buggy days they were known as bottles, and bottles they are, as far as I am concerned. The technicality of the name of the container is a small matter; it is the virility of the contents that really counts. I like my pox vaccine to have a wallop, even if it is the pigeon strain.

**Oct. 4**—The regular weekly cleaning has not been so heavy of late. Two of the houses are standing idle, airing, waiting for pullets. But cleaning is still part of the regular work and it was done this morning. I took care of the stock this afternoon while Harold and Donnie worked in the woods.

**Oct. 6**—One of the water tanks in the west house is showing a few pits; rust spots. I have two extras on tap but have ordered four more. I am taking no chances of running short of equipment. There is an extra keg of egg case nails that hasn't been touched.

**Oct. 8**—Timothy hay, home grown and baled, costs $3.00 a ton, plus labor. Excelsior has advanced to $40.00 a ton. This is some difference in price, well I guess yes. It is just such a difference that I am going to

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give the hay a test-out for nesting materials.

**Oct. 10** — We vaccinated and housed 185 of the cream pullets. This was the product of two brooder houses, and they were placed in the east laying house. It is a wee bit ahead of schedule, but I am getting on pins and needles. The birds ought to be in, but the weather is nice to be out, so I am betwixt and between. The compromise is to move a few into the east and north houses and get them accustomed to their surroundings. They can then act as guides to new birds added later. It was hot and dry this morning and a 100-dose bottle of vaccine would only do about 90 birds. At the same rate, I will have to get more vaccine.

**Oct. 11**—Four dead pullets out on the range this morning; looked like the work of a dog. Offhand I would say the loss was around $6.00, for they were good birds. A pullet just ready to lay ought to be worth in the neighborhood of $1.50. After a year's work in one of my laying houses, she would be worth 50 cents, provided she could stand on both legs and had some heft.

**Oct. 13** — I have heard flocks of blackbirds, robins, starlings, and sparrows. I have heard the Ladies Aiders. But when it comes to talking about it and doing nothing, the pullets in the north house did just that at roosting time.

The sun went behind a cloud as the birds were starting to think about going on perches. The perches were several feet higher than perches in the brooder houses, and, due to the darkness, the birds couldn't see them. As the darkness settled, the more desperate the pullets became. There was much running to and fro, but no knowledge was spread. The sum and substance was that Donnie and I had the whole bunch to put on the roosts.

**Oct. 14**—Harold and I caught up 200 grade A pullets for vaccination. Kid White does the vaccinating while the Old Man holds the birds on the table. Then between jobs Harold distributes the graded coops to the various laying houses. So far, however, only the east and north houses are being used. The pullets we housed today were evenly divided between these houses.

**Oct. 15**—I wonder how many eggs I have been losing on the range. I have known for quite a while that the pullets have been laying in the grass and weeds, as we would occasionally find a nest. Daily range production was around 90 eggs. We have housed 600 pullets and the range production is practically the same. Of course, the birds that are already housed are laying, too. It is slowly dawning on my befuddled brain that I have been losing some money. And with top eggs at 47 cents a dozen, wholesale at that.

**Oct. 18**—I believe a skunk or a cat is working on the range stock. Donnie found a pedigreed cockerel, a bird that in life must have weighed at least 5 pounds, partly eaten. I don't know if a skunk could kill a bird that large. A 'coon could and also a large cat. A tommy woods cat, one that has reverted to nature, can kill his weight in well nigh anything. Above all things, I hope it isn't a 'coon, because our success in trapping them is as poor as a running gear hen.

**Oct. 20** — No success in catching the varmint yesterday, but this morning the bear trap had him by the neck. It is a fact that Donnie sets steel traps, bear traps, when he traps for varmints. It is also a fact that I have seen this cat somewhere around the neighborhood. I am not putting out anything as to where I have seen the cat, but it's a cinch it won't be seen around this territory anymore. It weighed 12 pounds, so to knock down a 5-pound rooster would be as easy as taking candy away from a baby.

**Oct. 22**—We are still housing pullets. It is a daily job now to vaccinate about 200, or two bottles of the dope. They are distributed in four houses, the east end of the block house, the east, west, and the north. The laying and close-ups are in the east and north. The big husky fellows, big frames and small combs, are being put in the west house. The smaller birds, those that have been feed hopper-shy, are in the east end of the block house. These birds just need a little special treatment and, being all by themselves, should snap out of it in a few weeks. After all, what is a few weeks to a chicken?

**Oct. 23** — Another coop of outlawed cockerels went on today's sale. The removal of these non-pedigreed birds makes the breeding cockerels, which are pedigreed, show up to a far better advantage. Of course, there will be a few culls among the pedigreed birds, but there will be some awful good ones, too. The young stock this season is the best I have had in several years. During the round-up so far I haven't seen a gray eye or a bird that was dragging a wing or foot through the grave.

Maybe there is something to this idea of breeding from bloodtested hens that are several years old. During the summer, I incinerated several cases of what I took to be range paralysis, but the fact is that there is none now, nohow, to be specific.

**Oct. 24**—I am not quite sure if we have had Indian summer or not, but we have had some nice weather. I prefer to think of it as just a late fall, then I can look forward to a nice long Indian summer. The pullets that have been housed have not become restless so far. But when the pullets become wild eyed and restless, it is high time something was done about it, for the next step is feather pulling. And feather pulling is the forerunner of cannibalism.

During Indian summer, those nice warm days in the fall, the birds are very apt to get into trouble. I have started to feed newspapers and whole oats, but I still have a few more tricks in reserve.

**Oct. 25** – A notice from Ralph Treat to the effect that the F.E.C. is to hold the second annual meeting in Columbus Nov. 3. I have such a befuddled state of mind as to the real name of alphabetical soup these days that I will make a plain statement of fact. The F.E.C. is the Federated Egg Cooperative, a holding company, so to speak, of all the egg auctions in Ohio, and is under the management of Dave Ferneau, in Cleveland. Dave is, therefore, the government graded egg quotations in Cleveland.

**Oct. 27** – We picked up a few pullets on the range and these, with the ones held in the feeding battery, totaled 75. About 4 o'clock this afternoon Kid White and I decided that we had better vaccinate, even if we did waste a little vaccine. One of the pullets had run amuck and beat up four of her companions, picking their heads right down to the skull bone. This is expensive business, for the injured birds will have to be kept out of the laying houses for at least a month.

**Oct. 29**—It didn't freeze last night after all. The thermometer was at 34° this morning and we had a very pleasant day. So pleasant that we were not able to catch any more pullets. They must have figured that it was so pleasant outdoors that it would be foolish to loaf in the houses.

**Oct. 31**—The Ohio Association of Cold Storage Locker Plant Owners is holding its annual meeting in Columbus. Kid White has been invited to appear on the program in a round table discussion. She and Miss Burkey, the home demonstration agent, left at 8 o'clock this morning. Kid White has put everything from polk berry sprouts, ice cream, mashed potatoes (salt, pepper and butter added) to fruits, vegetables, and meat in our locker.

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WHEN Benjamin Franklin, rancher near San Diego, California, went out to feed his chickens, he found a bomb. Calling police, the sheriff, the coroner and finally the Navy, he learned that it was a sand-filled practice bomb.

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# VIEWS OF THE EDITORS

## Did You Have Your Eggs This Morning?

An idea for the promotion of the domestic consumption of eggs that could be far reaching in its effectiveness if everyone connected with the poultry industry took it up, was contained in a letter from Mr. Howard Hand of Oyster Shell Products Corporation. A "P.S." of seven words at the end of his letter asked "Did you have your eggs this morning?"

Poultrymen write thousands of business and personal letters to the cities each day. Most of these arrive at the psychological time; first thing in the morning, and are read as soon as the city dweller arrives at his office. If he receives his letters at home, he is likely to read them just after breakfast. If each letter from poultrymen contained this short postscript, imagine the effect it could have. It would impress upon businessmen whose livelihood is derived from poultry that it is his personal responsibility to see that his family serve eggs every morning for breakfast. It would remind friends that serving eggs for breakfast would be a friendly gesture and directly help improve the lot of their poultrymen acquaintances.

Advertising specialists have found that the most effective position in a letter to put over a sales message is the postscript. They have also shown that repetition of a slogan or a sales message is effective promotion. Every poultryman is urged to contribute these seven words "Did you have your eggs this morning?" in every letter he writes. If everyone co-operates and asks his feed and supply dealers as well as the produce houses to take similar action, the Canadian poultry industry will increase the habit of eggs for breakfast to a point where it will be an important factor in post war consumption.

—Canadian Poultry Review, September 1942.

## Egg Marketing Troubles

We have received numerous letters stating that there seems to be trouble in the marketing of eggs. This is hard to understand at a time when the Federal Government is requesting "all-out" production for the war needs.

There appear to be several very definite reasons for the inability of some people to market their eggs satisfactorily.

1. Hucksters have been taken off the road due to the draft and to shortage of tires and gasoline. This has reduced the number of egg

buyers to such an extent that some poultry producers have had to seek new outlets.

2. Many grocery stores did not have cases, and would accept only those presented in cases. Many instances are reported where eggs have been delivered in orange crates.

3. Local markets were glutted. Some local stores found themselves over-loaded on eggs, and thus were forced to refuse to buy eggs brought in by others than their regular customers.

4. Lack of suitable wholesale market outlets. Many stores thus overloaded with eggs did not have suitable contacts, and being unable to market their holdings, were forced to stop buying eggs locally.

5. Poor egg quality has also hampered purchase of eggs. Information is at hand to indicate that in some sections affected, poor egg quality restricted the free buying of eggs. If such trouble has been experienced, it would be advisable to pack "washed-eggs" separate from clean eggs; also to market eggs more frequently and keep in a cool place while holding on the farm.

It seems that this marketing problem has already been to a large degree eliminated. It must be borne in mind, however, that egg cases are scarce, hucksters and pick-up men are getting fewer, and that during this war we are liable to run into other serious marketing problems. It will require the combined efforts of producer, merchant, and all marketing agencies to avoid future serious marketing troubles.

—Rural New Yorker, Sept. 19, 1942.

## Probably Need Another Hen House

We've been saying for a good while that corn belt chickens are too crowded to do their best for their owners. Now comes Iowa State College to report a survey in Iowa which shows one-fourth of the farms with only half enough space, and another fourth with only three-fourths enough space.

This space problem presses on the poultry raiser almost every month in the year. In the spring, he or she is inclined to put more than the standard two chicks per square foot in the brooder house. And sometimes half-grown chicks don't get moved promptly enough to pasture and a shelter house there.

In the fall, with increased poultry numbers, more trouble waits. Hens should have 3 to 4 square feet per hen, but more than half the farms provide less than this. Probably half of our readers ought to be putting up a new poultry house or building an extension on the old one.

There should be good money in poultry this year. But don't crowd the chicks or the hens. A few dollars spent for lumber and roofing will pay good dividends.

How big is your laying house? And how many hens do you expect to keep in it? Divide the square feet of floor space by the number of hens and see if you get two or four as the answer.

If the answer is four, or even three, we aren't talking to you. But if the answer is one or two, there is a job for you some time this fall.

—Wallace's Farmer, Sept. 5, 1942.

## Getting 200 Million More Chickens

To help relieve the meat shortage, Secretary of Agriculture Wickard asks poultry raisers to produce 200 million more chickens, starting them as soon as possible. He points out that if they are marketed at not less than 3 pounds, they will provide 600 million pounds of sorely needed meat—and provide it quickly.

Poultry raisers have not only met, but have exceeded every production quota set for them so far. I am sure they can be counted on to meet this one, but I am equally sure that the sooner the question of price control is settled, the sooner the chicks will be started.

Farmers I know don't want anything more than a square deal, but they would like to know where they stand. The idea of parity—of equality—is thoroughly American. We can understand it. But some of the arithmetic behind it is confusing.

Parity is based on the average prices you received for your products back in 1909 to 1914. Those who were raising chickens then remember that hens didn't lay as many eggs as they do now. (The government says 85 eggs per hen per year in 1910 compared to 110 last year.)

In figuring parity on eggs, the government takes into consideration not only the variation in price from season to season, but also the fact that there has been a change in the "seasonal pattern" in the last 30 years.

The government does not admit a similar change in the "seasonal pattern" of poultry production, however, which seems inconsistent. We can remember when folks were lucky to have fried chicken by the Fourth of July, and now there are plenty ready for Easter!

As for turkeys, they were a rare bird 30 years ago, and basing a parity price on what they were worth at that time is enough to throw the price completely out of line with the price of chickens.

The problem of fixing a price on poultry and eggs is not an easy one. Fixing the right price is even harder. But right now it seems that supply is more important than price. If there isn't a real incentive to produce food, everything else is futile. What is the good of a gun if those who are shooting do not have something to eat?

If Secretary Wickard wants 200 million more chickens, he must keep the price level high enough to provide an incentive for this additional production. He must see that the present method of producing and marketing is in no way disturbed. And he must see that the farmer has enough help to produce the crop.

—Frank Priebe's Weekly Letter, Sept. 24, 1942.

### Meat Rationing—What It May Mean

The rationing of red meat is to start about the first of the new year. It is expected that the ration will be 2½ pounds per person per week. This calculation mathematically divides the supplies that are expected to be available equitably amongst all the people. It would appear, however, that in actual practice it will be found necessary to reduce this allotment per person, for the theory of the thing may not prove to be the practice of it. Many, for example, will buy ground beef instead of T-bone steaks; and who will use their precious ration coupon for spare ribs? Bones will certainly be unwanted; and well paid war industry workers will want the better cuts and not the more wasteful cheaper parts.

It would be difficult to include poultry in any rationing scheme. Most chickens are sold undrawn, and coupons would have to make allowance for offal. Moreover, a chicken cannot be cut to coupon size or weight. It is reasonable to anticipate that dressed poultry will be exempt from the rationing program. This will put it in position to serve as a supplementary food, and will tend to broaden consumer demand for poultry. Eggs, likewise, if exempt from rationing, will benefit from a broadened market. If a consumer hasn't rationing coupons enough to get his accustomed bacon for breakfast, he can take eggs.

—Frank L. Platt, American Poultry Journal, October 1942.

## *Wet Alfalfa for Turkeys*

A California grower was having trouble getting his birds to eat alfalfa on the range. Instead of taking the green alfalfa, for some unknown reason they were eating, dead, dry grass and some compaction resulted. As an expedient the grower tried wetting the alfalfa meal (coarse ground, and the birds took to it immediately. Care was taken not to put out too much at a time and there was no chance of the wet hay turning sour.

—Norbest Turkey News, September 1942.

☛ TIP BOARDS, object of a search by policeman of a place suspected of having gambling devices, were found under a hen, contentedly settled down on a nest in the yard back of the establishment, says an Associated Press report from North Carolina.

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# Blue Comb or Pullet Disease

By ERWIN JUNGHERR
University of Connecticut

*Reprinted from Everybodys Poultry Magazine*

WITH eggs now called for in astronomical figures by the Food for Freedom Program, livability of poultry and disease control become of utmost importance. The key to disease control is spotting an impending trouble before it gets a good start. This no one can do better than the poultryman who daily works with the flock. The best possible first aid he can give is to get a competent diagnosis from a veterinarian or state laboratory.

From the economic point of view, diseases of adult poultry hurt the most. Pullet disease is one of these hazards which may hit the flock just when the laying season goes into full swing.

### How Discovered

Pullet disease is not a new disease, because F. R. Beaudette, New Jersey Agricultural Experiment Station, gave a brief but adequate description of it in 1929, refering to it as a Cholera-like disease, and also as the x-disease of adult birds, but without the cholera germ.

No further mention was made of it in the scientific literature until 1940, when the writer and P. P. Levine rendered a detailed account of the various signs of the disease in affected birds and its occurrence in different regions. An interesting contribution as recently as May 1942, came from New Hampshire, where E. F. Waller reported the isolation of a specific filterable virus—an infinitesimally small infectious agent like that causing infantile paralysis—from the blood feces and eggs of pullet disease-affected birds. Since he has not reproduced fatal pullet disease with this virus, Waller is not sure whether it represents the actual or the whole cause of the condition.

### In Need of a Name

For once, scientists have not attached a high-sounding name to the disease, as there is yet so much to be learned about it. But this may be rather a blessing in disguise, because the disease parades now under various names in different regions so that the man in Michigan does not know what his fellow poultryman in Maine is talking about. Pullet disease is also known as Blue Comb, Summer-, Housing-, Unknown-, New-, X or XX, Cholera-like, and Tom Barron's disease, new wheat poisoning and contagious indigestion.

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Almost every one of these names refers to some outstanding feature of the condition.

### Where It Has Been Found

Reliable reports as to the occurrence of pullet disease have come from New Jersey, New York, from most of the New England states, Michigan, and more recently from California and Ontario; verbal reports seem to indicate its occasional appearance in North Carolina, Pennsylvania, and Utah. Before its geographic distribution can become definitely known, poultry disease diagnosticians must first agree on what properly belongs in this disease classification.

Pullet disease occurs primarily in chickens 5 to 7 months old, that is, during early production, but similar cases have been observed in 4-week-old chicks and in 2-year-old layers. Various breeds seem to be susceptible, with heavy breeds predominating. In spite of the name, males may be afflicted. Turkeys occasionally come down with the disease. A Connecticut survey over a period of nine years showed an incidence of 15 per cent among the disorders of growing and adult birds. There was a decided seasonal increase between June and November with a peak in August.

### Signs of the Disease

Pullet disease is an enemy of many disguises. Typical acute cases are often seen two to three weeks after housing, although birds on range are not always spared. Over one-half of a fine looking flock may show a sudden affliction which is characterized by depression, lack of appetite, and whitish diarrhea. Some of the birds exhibit darkening of the comb and wattles; sunken eyes; shrivelled, feverish legs; and distention of the crop.

Laying flocks show a severe drop in egg production which often persists for some time after the flock has apparently recovered. The average mortality is about 5 per cent. However, some of the recovered birds may suffer a relapse and then become affected with the more chronic form of pullet disease.

### Post-Mortem Appearances

If a bird is examined soon after death, one notices, aside from the changes described, evidence of severe drying-out of the muscle tissues. The breast muscles may show sharply outlined pale areas which look more like fish flesh than poultry muscle. Even the blood is thick and coagulates within a few seconds. The abdominal fat, which is usually plentiful, often exhibits fine scattered hemorrhages, especially along the inside of the breastbone and over the gizzard and heart.

The most typical, but not too frequent alteration, occurs in the liver, which presents evenly-spaced yellowish and reddish areas, about the size of a sand grain. There is no marked enlargement of liver and spleen, which helps in the differentiation from fowl paralysis and other tumor-like conditions. The follicles of the ovary are generally soft or broken, with the contents spilled into the body cavity. The intestinal tract appears pale and is usually filled with thick turbid mucus. The abdominal sweet bread or pancreas presents a chalky white speckled appearance.

Not to be overlooked are the kidneys, which are dark red and congested in the acute form, but may become markedly pale and swollen, because of an accumulation of urine, in the more chronic form. At this stage, they look exactly as in so-called kidney-gout.

Any one of these organic changes may occur either alone or in combinations. Sometimes the lesions are only microscopic in size. This is responsible for the variable picture diagnostic laboratory comes in with of the disease. Furthermore, essentially similar lesions may be brought about by known infectious diseases such as fowl cholera and pullorum disease, in which the offending germs can be isolated by bacteriologic methods. That is where the diagnostic laboratory comes in in the final recognition of pullet disease.

### Cause Still Unknown

The true cause of pullet disease is unknown. The condition does not seem to be due to any particular feed, since it has been observed in birds fed a large variety of commercial brands and home-mixed feeds. No bacterial organism has been found responsible.

It is yet too soon to state the relationship of the specific virus, isolated by Waller, to the causation of pullet disease. If it turns out to be the immediate or mediate cause, pullet disease could be clearly labelled as an infectious and contagious disease. Field evidence, on the other hand, does not entirely support this conception. Most of the really troublesome cases go into the chronic form, which is indistinguishable from kidney gout. The latter disease for years has been looked upon as due to some internal chemical disturbance.

Experimentally, it has been possible to produce a pullet disease-like condition by injecting or feeding certain chemicals which have a special injurious effect on the kidneys. And such chemicals work in smaller doses at higher environmental temperatures. Thus, we could think of an internal poisoning aggravated by heat. There exists, of course, the big question whether all the various cases which now go under the name pullet disease represent one and the same disease.

### Present Methods of Control

From the preventive point of view, the poultryman should keep in mind that early production and housing constitute a period of unusual stress on the birds. Any management factor which increases this stress should be avoided. This means vaccination for fowl pox and other diseases should be done well in advance, say at the age of 2 months, so that the birds have overcome the after-effects when ready for housing. Birds should be well-fleshed, but not fat. Transfer from the range to con finement must be gradual, with a minimum of disturbance to the birds. Shade, readily available water supply, and intermittent feeding are important factors during the critical period.

When the disease is suspected, it is paramount to obtain a laboratory diagnosis. In view of the possibility of dealing in pullet disease with an infectious disease, severe cases should be culled and the affected flock held in isolation. If possible, birds should be allowed access to range and the houses should be well ventilated.

Flushes are best avoided in view of the already severe loss of tissue water.

Molasses (or brown sugar) may be given in the drinking water to the extent of 10 per cent or in the form of a wet mash composed of equal parts of rolled oats and bran mixed with 10 to 30 per cent of molasses and sufficient water to obtain a crumbly consistency. This wet mash is fed on alternating days of one week for about 3 hours, after withholding feed for 2 hours.

Some observers have claimed good results from the use of 1 level teaspoonful of blue stone (copper sulfate) in 2 gallons of water. Such medicated water is to be offered in non-metal containers on the days that the wet mash is fed.

## *Adobe Poultry House*

Wartime restrictions on building – less lumber and fewer nails – are not stopping the response of Walter Brantley of southwest Nebraska, to the U. S. Department of Agriculture call for more eggs. He built a 20 by 40 hen house to house 150 chickens.

But Brantley did not flout war orders. He took advantage of one of the natural resources of his locality—a sticky soil—and made adobe blocks. The shelter, says Brantley, is a first rate hen house, warm and dry in winter, cool in summer.

The only materials Brantley bought, after an inventory of building material on hand, were two rolls of roofing paper and some glass cloth—total cost $7.48.

Such an outlay is good business, Brantley believes, because eggs sold from 150 chickens last year brought $278. This year, with a good market, he hopes to double this record—and to take a whack at the Axis too.

—U.S.D.A. Clip Sheet.

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# Turkey by the Ton

By MARY C. CLARKE

*Condensed from U. S. Egg and Poultry Magazine*

HOTELS and restaurants

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### Why the Increase

What accounts for the increase? An evolution in public taste, for one thing, according to Ernest Byfield, manager of the Hotel Sherman; promotion by the restaurants of a food item which is very profitable for them to serve, for another.

Few restaurants and hotels offered much turkey out of season as long as the public clung to the silly notion that it wasn't fit to eat in warm weather. But smart restau-

when it began to rise sharply. That year, with production reaching a new high (422,000,000 pounds) and prices a favorable level, the men behind the menus really began to push turkey.

At the Drake Hotel and the Blackstone, however, 1936-37 was the peak year. "We went in for turkey in a big way that year," says H. J. Nolan, steward of the two hotels. "Beef prices hit a peak with short loins bringing 82 to 90 cents a pound,

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(U. S. Egg and Poultry Magazine, September 1942)

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National Poultry Digest

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# Turkey by the Ton

By MARY C. CLARKE

*Condensed from U. S. Egg and Poultry Magazine*

HOTELS and restaurants everywhere have been giving turkey a big play in the last few years. So big a play, in fact, that it seems that the public eating houses deserve most of the credit for boosting the per capita consumption of turkey meat from 2.1 pounds in 1932 to 3.64 pounds in 1941.

It's a matter of turkey by the ton in the hotels and restaurants today—and a good many tons at that. At least three Chicago hotels each served as much as 125 tons of turkey in their respective dining rooms last year. That's a lot of turkey in any man's language. It's also from 30 per cent to 400 per cent more than these same hotels served 10 years ago. And it's not a patch on what they expect to serve in 1942.

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Few restaurants and hotels offered much turkey out of season as long as the public clung to the silly notion that it wasn't fit to eat in warm weather. But smart restaurateurs were on the alert for any signs of change in eating habits. When it became evident that the public was gradually swinging around to the idea that turkey is good eating any time of the year, they were quick to take advantage of the situation because turkey is admittedly one of the best money-makers on the menu. The eating houses were glad to see the public accepting turkey as a year 'round food—gladder still to see this acceptance grow into a healthy demand in the last three or four years. As a result, each year finds more and more of them serving turkey 12 months in the year.

Generally speaking, turkey consumption in Chicago eating houses increased rather gradually until 1939, when it began to rise sharply. That year, with production reaching a new high (422,000,000 pounds) and prices a favorable level, the men behind the menus really began to push turkey.

At the Drake Hotel and the Blackstone, however, 1936-37 was the peak year. "We went in for turkey in a big way that year," says H. J. Nolan, steward of the two hotels. "Beef prices hit a peak with short loins bringing 82 to 90 cents a pound,

Institute of American Poultry Industries, 110 N. Franklin St., Chicago, Ill.
(U. S. Egg and Poultry Magazine, September 1942)

and other meats were correspondingly high. Turkey prices followed along in due time, but they were low for a while and we pushed turkey hard while they were. We averaged close to 1500 pounds of turkey a day that year."

In 1938 turkey consumption in these two hotels declined considerably, but it was still above the prepeak level. It has remained fairly steady ever since, increasing consistently a little each year. At the present time the Drake and the Blackstone between them are using an average of 1000 pounds of turkey a day. This is between 30 per cent and 35 per cent more than they were using back in 1932.

### Cheap for Hotels to Serve

Chef Louis Auffret of the Drake is enthusiastic about turkey because it is cheap for the hotel to serve. The Drake buys its turkeys on contract six or eight months ahead, which gives them some protection on price. Auffret, who generally uses the broadbreasted birds, gets 16 8-ounce servings from a 20-pound bird. On occasion he uses small hen turkeys for banquets, serving one bird to every three or four persons.

The Drake features turkey twice a week in summer, three or four times a week the rest of the year. "But you can get it here any day of the year," Nolan says, "whether it's on the menu or not. A lot of people are asking for it, too. We're serving more turkey a la carte now than ever before." Nolan expects 1942 to be a big turkey year. "I think we will serve more this year than we ever have. It's going to be harder and harder to get good beef and we can't ask $3.00 for a steak unless the beef is worth it. If we can't get the kind of beef we can sell at that price, we'll serve more turkey at $2.50 instead."

Marcel of the Morrison Hotel reports that the 37,000 pounds of turkey he served last year represents a 50 per cent increase over the amount of turkey the hotel used in 1932, and a 32¼ per cent gain over the previous year.

### Frozen Birds Boost Use

Using only fresh turkeys until about five years ago, they served turkey only in season and their volume was naturally quite small. About 1937 they decided to try some frozen turkeys and began to serve turkey all year. There is a fairly good demand for it in the summer, Marcel says, and cold roast turkey, turkey sandwiches, and turkey steaks appear on the menu with fair regularity throughout the warm weather.

With 18,000 pounds already used, and the heaviest turkey season still to come, Marcel looks for a substantial increase in consumption at the Morrison this year. Like Mr. Stechbart, however, he is concerned about the price, and he also has an idea that curtailment of transportation facilities may make it difficult to get turkeys later on.

The biggest increase in turkey consumption reported at any of the hotels checked on was at the Sherman. There, according to Mr. Byfield, consumption has jumped from 60,000 pounds a year to 250,000 pounds in the last 10 years.

Although the Sherman consistently used a little more turkey each year during this period, their consumption figures didn't show a marked increase until 1939. That was the year that Byfield and Executive Chef Pointreau decided the time was ripe to promote turkey. And promote it they did.

### Turkey Promotion Pays

They began to serve it the year round and to play it up on the menu. Their purchases of fresh turkeys increased and their storage purchases jumped 44 per cent that year. Today, with turkey on the Sherman menu 365 days a year, the hotel is using as much turkey in a week as they used in a month back in 1932. And they're serving it to a lot of people. Each of the 10,000 25-pounders they are using a year now yields from 30 to 35 portions. And these 300,000 to 350,000 servings of turkey represent around 18 per cent of the meals the Sherman serves.

The trend is apparent. The public wants more turkey and the hotels and restaurants are going to see that they get it. Add to that the shortage of beef and pork for civilian use—an ill wind which seems destined to blow favorably on the poultry industry—and it looks as if there will be an excellent market for this year's record crop.

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## *Wheat for Poultry*

Wheat makes a good feed for poultry as long as it is fed with other grains. To the extent that wheat replaces yellow corn, it reduces the vitamin A content of the ration. Wheat may make up as much as 50 per cent of the grain ration with oats and yellow corn making up 25 per cent each.

Wheat may replace all the middlings and some of the bran in the mash. Altogether, wheat, may make up 30 per cent of the mash. Some bran should be left in to make mash more palatable and to provide phosphorus and bulk. At least 25 per cent yellow corn should be retained in the mash.

To replace the vitamin A which is lost in substituting wheat for corn in the ration, dehydrated alfalfa leaf meal should make up 5 per cent of the mash. If, in addition, a poultry feeding oil containing vitamin A is used, a greater margin of safety is provided.

—Minnesota Information Letter, August 1942.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

### August Egg Production

| State and Division | Number of layers on hand during August | | Eggs per 100 layers | | Total eggs produced During Aug. | | Jan. to Aug. incl. | |
|---|---|---|---|---|---|---|---|---|
| | 1941 | 1942 | 1941 | 1942 | 1941 | 1942 | 1941 | 1942 |
| | Thousands | | Number | | Millions | | | |
| Me. | 1,426 | 1,503 | 1,544 | 1,541 | 22 | 23 | 210 | 223 |
| N. H. | 1,209 | 1,221 | 1,442 | 1,472 | 17 | 18 | 165 | 181 |
| Vt. | 666 | 674 | 1,519 | 1,482 | 10 | 10 | 90 | 101 |
| Mass. | 2,928 | 3,248 | 1,432 | 1,466 | 42 | 48 | 428 | 460 |
| R. I. | 362 | 334 | 1,358 | 1,566 | 5 | 5 | 51 | 52 |
| Conn. | 2,001 | 2,102 | 1,383 | 1,569 | 28 | 33 | 265 | 289 |
| N. Y. | 9,962 | 9,916 | 1,414 | 1,426 | 141 | 141 | 1,345 | 1,382 |
| N. J. | 4,144 | 4,646 | 1,352 | 1,293 | 56 | 60 | 595 | 647 |
| Pa. | 11,350 | 12,282 | 1,373 | 1,345 | 156 | 165 | 1,589 | 1,761 |
| N. Atl. | 34,048 | 35,926 | 1,401 | 1,400 | 477 | 503 | 4,738 | 5,096 |
| Ohio | 13,086 | 14,121 | 1,345 | 1,327 | 176 | 187 | 1,757 | 1,902 |
| Ind. | 8,180 | 9,415 | 1,296 | 1,318 | 106 | 124 | 1,155 | 1,312 |
| Ill. | 12,484 | 13,722 | 1,153 | 1,203 | 144 | 165 | 1,556 | 1,788 |
| Mich. | 7,385 | 7,792 | 1,336 | 1,383 | 99 | 108 | 1,020 | 1,081 |
| Wis. | 10,289 | 11,569 | 1,352 | 1,395 | 139 | 161 | 1,315 | 1,528 |
| E. N. Cent. | 51,424 | 56,619 | 1,291 | 1,316 | 664 | 745 | 6,803 | 7,611 |
| Minn. | 13,197 | 15,515 | 1,314 | 1,370 | 173 | 213 | 1,721 | 2,147 |
| Iowa | 18,202 | 20,888 | 1,181 | 1,271 | 215 | 265 | 2,318 | 2,843 |
| Mo. | 13,008 | 14,996 | 1,209 | 1,228 | 157 | 184 | 1,691 | 1,993 |
| N. Dak. | 2,794 | 3,314 | 1,308 | 1,286 | 37 | 43 | 322 | 417 |
| S. Dak. | 4,426 | 5,382 | 1,203 | 1,283 | 53 | 69 | 512 | 693 |
| Nebr. | 7,331 | 9,172 | 1,290 | 1,296 | 95 | 119 | 987 | 1,263 |
| Kans. | 9,415 | 10,998 | 1,240 | 1,221 | 117 | 134 | 1,216 | 1,501 |
| W. N. Cent. | 68,373 | 80,265 | 1,239 | 1,280 | 847 | 1,027 | 8,767 | 10,857 |
| Del. | 652 | 668 | 1,286 | 1,252 | 8 | 8 | 88 | 92 |
| Md. | 2,294 | 2,456 | 1,274 | 1,228 | 29 | 30 | 279 | 306 |
| Va. | 5,391 | 5,992 | 1,181 | 1,135 | 64 | 68 | 642 | 741 |
| W. Va. | 2,441 | 2,814 | 1,327 | 1,330 | 32 | 37 | 313 | 369 |
| N. C. | 5,324 | 6,130 | 961 | 967 | 51 | 59 | 558 | 658 |
| S. C. | 2,314 | 2,497 | 862 | 877 | 20 | 22 | 211 | 238 |
| Ga. | 4,242 | 5,204 | 856 | 884 | 36 | 46 | 405 | 495 |
| Fla. | 1,374 | 1,454 | 1,026 | 1,085 | 14 | 16 | 152 | 167 |
| S. Atl. | 24,032 | 27,215 | 1,057 | 1,051 | 254 | 286 | 2,648 | 3,066 |
| Ky. | 5,334 | 6,658 | 1,197 | 1,159 | 64 | 77 | 666 | 856 |
| Tenn. | 5,428 | 6,533 | 1,091 | 1,094 | 59 | 71 | 618 | 733 |
| Ala. | 4,293 | 4,858 | 986 | 939 | 42 | 46 | 411 | 501 |
| Miss. | 4,422 | 4,849 | 831 | 787 | 37 | 38 | 377 | 446 |
| Ark. | 4,899 | 5,612 | 955 | 936 | 47 | 53 | 479 | 567 |
| La. | 2,898 | 3,310 | 778 | 722 | 23 | 24 | 246 | 279 |
| Okla. | 7,083 | 8,303 | 1,122 | 1,091 | 79 | 91 | 849 | 1,041 |
| Tex. | 17,142 | 19,968 | 1,094 | 1,094 | 188 | 218 | 1,934 | 2,204 |
| S. Cent. | 51,499 | 60,091 | 1,047 | 1,028 | 539 | 618 | 5,580 | 6,627 |
| Mont. | 1,353 | 1,402 | 1,302 | 1,296 | 18 | 18 | 163 | 182 |
| Idaho | 1,434 | 1,572 | 1,342 | 1,386 | 19 | 22 | 188 | 206 |
| Colo. | 2,055 | 2,490 | 1,218 | 1,277 | 25 | 32 | 253 | 308 |
| Utah | 1,556 | 1,688 | 1,442 | 1,476 | 22 | 25 | 209 | 228 |
| Wash. | 4,528 | 4,710 | 1,432 | 1,423 | 65 | 67 | 640 | 647 |
| Oreg. | 2,478 | 2,356 | 1,358 | 1,451 | 34 | 34 | 328 | 347 |
| Calif. | 10,121 | 10,406 | 1,308 | 1,286 | 132 | 134 | 1,269 | 1,396 |
| West. | 25,284 | 26,588 | 1,329 | 1,335 | 336 | 355 | 3,266 | 3,553 |
| U. S. | 254,660 | 286,704 | 1,224 | 1,233 | 3,117 | 3,534 | 31,802 | 36,810 |

Hens and pullets on farms laid 3,534,000,000 eggs in August, a record high production for the month—13 per cent above August last year and 29 per cent above the 10-year (1931-40) August average. A record high production was reached in all parts of the country except the Western states, where the production was 11 per cent less than the record of August 1931. The combined egg production during the first eight months of this year was also the largest of record for the period—16 per cent larger than last year and 27 per cent above the 10-year average.

The rate of egg production per layer during August set a new high record for the month—12.3 eggs per layer compared with 12.2 in August last year and 11.1, the 10-year average. The production in farm flocks of 111.8 eggs per layer during the first 8 months of this year was 2 per cent above the previous record high of last year and 11 per cent above the 10-year average for those months.

There was an average of 286,704,000 layers in farm flocks during August, this being a fraction of 1 per cent less than the record high August number in 1927. Before the end of the year the number of layers on farms will doubtless be the largest on record. Increases in layers above a year ago are shown in all parts of the country, varying from 5 per cent in the West to 17 per cent in the West North Central and South Central states.

The number of pullets not yet of laying age on September 1 was the largest of record in all parts of the country except the Western states. For the U. S. as a whole, the number was 10 per cent larger than a year ago and 28 per cent above September 1, 1937, the low point of a 6-year period. The largest increase above a year ago was 12 per cent in the West North Central states and the smallest was 4 per cent in the South Atlantic states. Increases in other areas were 11 per cent in the South Central, 9 per cent in the North Atlantic and East North Central states, and 7 per cent in the West.

—Comment from U. S. D. A. Monthly Egg and Poultry Production Report.

## Receipts of Eggs and Poultry

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs | | | Pounds of Poultry (000 omitted) | | | Pounds of Young Stock (000 omitted) | | | Pounds of Fowl (000 omitted) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | % Chg. | 1942 | 1941 | % Chg. | 1942 | 1941 | % Chg. | 1942 | 1941 | % Chg. |
| Sept. 5 | 135,352 | 103,291 | +31.04 | 7,781 | 4,111 | +89.26 | 4,900 | 2,769 | +76.96 | 2,750 | 1,265 | +117.43 |
| Sept. 12 | 137,453 | 110,826 | +24.02 | 8,151 | 4,744 | +71.83 | 5,413 | 3,226 | +67.79 | 2,625 | 1,441 | + 82.20 |
| Sept. 19 | 136,357 | 107,796 | +26.50 | 9,893 | 5,725 | +64.05 | 6,139 | 3,902 | +57.33 | 3,115 | 1,738 | + 79.21 |
| Sept. 26 | 129,093 | 91,265 | +41.45 | 9,257 | 6,236 | +48.44 | 5,889 | 4,174 | +41.08 | 3,263 | 1,979 | + 64.86 |

## Receipts of Eggs (cases) at 4 Markets*

| Geographic Section | August 1942 | August 1941 | August % change | Jan. to Aug., Inc., 1942 | Jan. to Aug., Inc., 1941 | Jan. to Aug., Inc., % change |
|---|---|---|---|---|---|---|
| New England | 50,053 | 26,422 | + 89.4 | 591,597 | 348,453 | + 69.8 |
| Middle Atlantic | 170,341 | 111,918 | + 52.2 | 2,057,680 | 1,631,351 | + 26.1 |
| South Atlantic | 12,292 | 10,105 | + 21.6 | 287,975 | 175,662 | + 63.9 |
| East North Central | 210,169 | 177,051 | + 18.7 | 2,542,099 | 2,491,425 | + 2.0 |
| West North Central | 376,292 | 419,227 | – 10.2 | 4,535,108 | 5,650,617 | – 19.7 |
| South Central | 2,794 | 1,911 | + 46.2 | 151,466 | 73,271 | +106.7 |
| Mountain | 22,667 | 21,023 | + 7.8 | 169,708 | 288,950 | – 41.3 |
| Pacific | 14,886 | 37,375 | – 60.2 | 80,917 | 112,035 | – 27.8 |
| Miscellaneous | 203 | 179 | + 13.4 | 2,805 | 2,843 | – 1.3 |
| TOTAL | 859,697 | 805,211 | + 6.8 | 10,419,355 | 10,774,607 | – 3.3 |

## Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic Section | August 1942 | August 1941 | August % change | Jan. to Aug., Inc., 1942 | Jan. to Aug., Inc., 1941 | Jan. to Aug., Inc., % change |
|---|---|---|---|---|---|---|
| New England | 2,037,526 | 1,813,608 | + 12.3 | 5,350,880 | 7,247,459 | – 26.2 |
| Middle Atlantic | 6,766,303 | 8,090,405 | – 16.4 | 39,304,640 | 41,352,382 | – 5.0 |
| South Atlantic | 6,179,439 | 4,649,384 | + 32.9 | 47,771,189 | 27,229,861 | + 75.4 |
| East North Central | 3,864,291 | 2,470,256 | + 56.4 | 20,499,771 | 20,924,220 | – 2.0 |
| West North Central | 14,983,313 | 13,949,065 | + 7.4 | 76,932,216 | 78,238,325 | – 1.7 |
| South Central | 1,689,920 | 1,358,730 | + 24.4 | 11,439,426 | 13,700,861 | – 16.5 |
| Mountain | 279,515 | 96,219 | +190.5 | 3,676,519 | 3,198,302 | + 15.0 |
| Pacific | 697,217 | 292,477 | +138.4 | 7,581,075 | 8,511,608 | – 10.9 |
| Miscellaneous | 258,680 | 0 | – | 258,680 | 0 | – |
| TOTAL | 36,756,204 | 32,720,144 | + 12.3 | 212,814,396 | 200,403,018 | + 6.2 |

*New York, Chicago, Philadelphia and Boston.

## Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| September 5 | 26 | 39,473 | | +29.36 |
| September 12 | 24 | 35,866 | +2.7 | +21.8 |
| September 19 | 26 | 40,286 | +3.6 | +23.4 |
| September 26 | 23 | 39,547 | +2.3 | +23.6 |

## Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| September 5 | 56 | 58,505 | 51,085 | –5.10 | +14.52 |
| September 12 | 57 | 55,603 | 51,768 | –9.07 | + 7.41 |
| September 19 | 57 | 57,129 | 51,160 | –0.11 | +11.66 |
| September 26 | 59 | 57,246 | 51,702 | – .84 | +10.72 |

Receipts of eggs at Central Western packing plants have continued to decline in volume as the season has advanced, but during the greater part of September averaged 25 to 30 per cent above September last year. During all of 1942 until September, average weekly receipts per plant were considerably above the corresponding periods of 1941. September plant averages of about 650 cases were lower than those of a year ago, nevertheless they were high as compared with 1940 and other preceding years, when averages were only about 250 cases per week. At Pacific Coast country plants, where there has been a slight falling off of receipts the past month, the September relationship with a year ago was an increase of about 10 per cent. Earlier in the season the increases over 1941 were 25 to 30 per cent.

During most of the current production season prior to August 1 terminal market receipts were lighter than in 1941, due to the diversion of eggs from terminal markets to drying plants. In August and September, however, receipts at these markets were heavier than those of last year, the August increase being 12 per cent, and September slightly less than that. Egg production in August was a record high for the month.

Except for the fairly active trading which occurred incident to the Jewish holidays just before the middle of the month, September live poultry markets lacked strength, and for the most part might be classed as weak. Some rather sharp price changes occurred on young stock, with a general downward tendency noted on this class, particularly in eastern markets where live poultry is a major item. Other markets shared in this tendency to a lesser degree, and in a few, prices on some classes moved upward. As a whole, the situation is best described as mixed.

Marketings of live poultry in the Central West are exceptionally heavy. Weekly reports through September 19 show consistent gains, with the most recent figure a record high. Average receipts per plant for the week ending September 19 were over 45,000 pounds, compared with 39,000 pounds during the preceding two weeks, and an August average of less than 33,000 pounds. In September last year, average weekly receipts were 27,000 pounds.

More than 65 per cent of the recent marketings have been young stock, which class has also been running more than 60 per cent heavier in total volume than a year ago. Marketings of fowl show even greater percentage increases over this same period last season, ranging from 117 per cent the first week of the month to a 79 per cent increase the week ending September 19. These heavy marketings of poultry are in line with the appeal of the Secretary for additional poultry to supplement supplies of other meats available for domestic consumption after sufficient quantities of the so-called red meats are reserved for all military and lend-lease requirements.
—Comment from U. S. D. A. Monthly Egg and Poultry Market Review.

## Egg Prices

Egg markets continued firm throughout September and further price advances occurred. Past seasonal trends show that September prices always

**1942 Egg Prices at New York City**

| Kind | Sept. 4 | Sept. 11 | Sept. 18 | Sept. 25 | Sept. 25 '41 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 38¾-44 | 39-44½ | 39¾-45½ | 40-45¾ | 34-38½ |
| Wholesale Sales of Fancy and Extra Fancy White | 44-50 | 45½-51½ | 47½-54 | 47½-55 | 38½-41 |
| White Specials | 43 | 44-44½ | 46½ | 46½ | 38 |
| Pacific Coast | 49 | 49¾-50 | 51½-52 | 53-53½ | 43-44 |
| Brown Specials | 42-48 | 43-49½ | 44-51 | 45-52 | 36½-40 |

average higher than those of August, but this year's situation had also the support of relatively good consumer demand and the Government buying program. Retail prices reached a point in some places which is reported to have caused a shifting in consumer buying from top to medium or lower qualities, although the meat situation probably caused a wider than usual use of eggs.

Prices followed rather sharp upward trends in most markets during the month. Advances were greatest on the higher grades, which at New York are now (September 30) 4 to 5 cents above September 1 prices, compared with an advance of about 1½ cents on average quality eggs. At Chicago, Firsts advanced 3 cents during the month, and on the Pacific Coast, Extras went up 4 to 5 cents. This month's trends will result in September prices for the most part averaging higher than in any of the past 13 years.

—Comment from U. S. D. A. Monthly Egg and Poultry Market Review.

## Eggs in Storage

Shell eggs in storage on September 1 totaled 6,759,000 cases, an increase of 628,000 cases over a year earlier. About 40 per cent (2,660,000 cases) of this total was reported as being earmarked for drying on Government commitments. On the same date, stocks in the 35 cities reported weekly were approximately 4,700,000 cases, which was approximately the same amount as a year earlier. During the month, out-of-storage movements in the 35 cities were almost double those of September 1941, with the result that by September 26, stocks in the 35 cities were reduced to 3,963,300 cases. This was 326,000 cases less than a year earlier. Holdings in the 35 cities have averaged about 70 per cent of the U. S. total during recent months. U. S. stocks of frozen eggs on September 1 were 272,231,000 pounds, 97½ million pounds of which were reported being held for drying purposes on Government commitments. An additional 5½ million pounds were reported as belonging to the AMA and FSCC.

—Comment from U. S. D. A. Monthly Egg and Poultry Market Review.

**Storage Holdings of Eggs**

| Kind | Sept. 1 5-Yr.-Avg. 1937-41 | Sept. 1 1941 | Aug. 1 1942 | Sept. 1 1942 | % Change Sept. '41-Sept. '42 |
|---|---|---|---|---|---|
| Shell Eggs (cases) | | | | | |
| SMA and FSCC | | 619 | 28 | | |
| Commercial | 6,532 | 5,512 | 7,726 | 6,759 | +22.62 |
| Total | 6,860 | 6,131 | 7,754 | 6,759 | +10.24 |
| Frozen Eggs (lbs.) | | | | | |
| SMA and FSCC | | 19,212 | 4,941 | 5,603 | –70.84 |
| Commercial | 148,330 | 174,794 | 285,588 | 266,628 | +52.53 |
| Total | 152,173 | 194,006 | 290,529 | 272,231 | +40.32 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 4,058 | 5,173 | 7,747 | 7,259 | +42.25 |
| Total (cases) | 10,918 | 11,304 | 15,501 | 14,018 | +24.00 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

## Poultry in Storage

**Storage Holdings of Poultry**

| Kind | Sept. 1 5-Yr.-Avg. 1937-41 | Sept. 1 1941 | Aug. 1 1942 | Sept. 1 1942 | % Change Sept. '41-Sept. '42 |
|---|---|---|---|---|---|
| | | Thousand Pounds | | | |
| Broilers | 8,417 | 9,729 | 5,467 | 7,992 | –17.85 |
| Fryers | 3,036 | 5,274 | 3,271 | 5,856 | +11.03 |
| Roasters | 5,398 | 8,880 | 4,930 | 7,611 | –14.30 |
| Fowls | 14,225 | 18,000 | 20,965 | 22,848 | +26.93 |
| Turkeys | 12,382 | 12,802 | 18,943 | 12,094 | – 5.54 |
| Ducks | 10,897 | 11,684 | 7,334 | 9,301 | –20.40 |
| Miscellaneous | 15,462 | 12,102 | 13,233 | 13,451 | +11.14 |
| Unclassified | | 6,892 | 5,203 | 7,622 | +10.54 |
| Total | 69,817 | 85,363 | 79,346 | 86,775 | + 1.65 |

## Government Purchases

Government purchases during the month for lend-lease included approximately 12,000 cases only. The principal Government buying has been dried eggs, which for the month amounted to approximately 10 million pounds.

—Comment from U. S. D. A. Monthly Egg and Poultry Market Review.

**Purchases of Eggs and Poultry Products by the USDA**

| Week Ending | Shell Eggs | Dried Eggs |
|---|---|---|
| | Cases | 1,000 lbs. |
| September 5 | 11,909 | 3,363 |
| September 12 | | 1,798 |
| September 19 | | 2,682 |
| September 26 | | 2,067 |
| 1942 Total to September 26 | 451,445 | 193,960 |

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 bs. of Laying Ration |  |  | Avg. Egg Price per Doz. (Dollars) |  |  | Avg. Feed Cost per 100 lbs. (Dollars) |  |  |
|---|---|---|---|---|---|---|---|---|---|
|  | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 | 1942 | 1941 | 1940 |
| September 3 | 5.6 | 6.6 | 6.7 | .422 | .357 | .278 | 2.37 | 2.37 | 1.85 |
| September 10 | 5.5 | 6.7 | 6.4 | .427 | .36 | .289 | 2.36 | 2.42 | 1.86 |
| September 17 | 5.4 | 6.9 | 6.6 | .435 | .357 | .281 | 2.35 | 2.45 | 1.86 |
| September 24 | 5.4 | 7.0 | 7.0 | .443 | .344 | .267 | 2.36 | 2.39 | 1.87 |

### Chicago Egg-Feed Ratio

|  | Dozens of Eggs to Buy 100 lbs. of Laying Ration |  |  |  |
|---|---|---|---|---|
| Year | Sept. 5 | Sept. 12 | Sept. 19 | Sept. 26 |
| 1942 | 4.79 | 4.92 | 4.96 | 4.65 |
| 1941 | 5.32 | 5.44 | 5.32 | 5.22 |

### Central California Egg-Feed Ratio

|  | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration |  |  |  |  |  |
|---|---|---|---|---|---|---|
|  | 1942 | 1941 | 1940 | 1939 | 1938 | 1937 |
| August | 5.65 | 6.18 | 6.94 | 6.47 | 5.63 | 7.76 |
| January-August | 7.22 | 7.20 | 9.08 | 7.50 | 7.55 | 9.54 |
| Year |  | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 |

—Data Compiled by Dorothy B. Erdahl, University of California.

## Egg Breaking Operations

### Frozen Egg Production 1940-42

| Month | 1940 | 1941 | 1942 |
|---|---|---|---|
|  | Pounds | Pounds | Pounds |
| January | 707,000 | 915,000 | 3,075,000 |
| February | 733,000 | 8,140,000 | 13,626,000 |
| March | 29,481,000 | 39,386,000 | 42,686,000 |
| April | 44,029,000 | 46,826,000 | 59,001,000 |
| May | 53,662,000 | 53,303,000 | 57,090,000 |
| June | 41,283,000 | 46,560,000 | 52,750,000 |
| July | 12,749,000 | 26,555,000 | 17,755,000 |
| August | 5,115,000 | 9,848,000 | 5,636,000 |
| September | 1,249,000 | 2,845,000 |  |
| October | 249,000 | 1,951,000 |  |
| November | 216,000 | 588,000 |  |
| December | 105,000 | 265,000 |  |
| Total | 189,578,000 | 237,182,000 |  |

### Dried Egg Production, August 1941-42

| Commodity | Aug. 1941 | Aug. 1942 | % change in 1942 |
|---|---|---|---|
|  |  | Pounds |  |
| Whole | 2,370,406 | 20,645,417 | +771 |
| Albumen | 249,252 | 216,374 | – 13 |
| Yolks | 235,251 | 83,092 | – 65 |
| Total | 2,854,909 | 20,944,883 | +634 |

## Hatchery Operations

### Chicks Hatched by Commercial Hatcheries

| Geographic Divisions | Aug. 1939 | Aug. 1940 | Aug. 1941 | Aug. 1942 | % chg. from Aug. 1941 | Jan.-Aug. Inc. 1941 | Jan.-Aug. Inc. 1942 | % chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
|  |  |  | Thousands |  |  |  |  |  |
| New England | 2,850 | 2,179 | 3,819 | 5,719 | +50 | 52,933 | 61,041 | +15 |
| Middle Atlantic | 1,119 | 1,359 | 1,832 | 1,988 | + 9 | 75,753 | 85,173 | +12 |
| South Atlantic | 2,618 | 3,320 | 4,868 | 5,939 | +22 | 93,658 | 104,921 | +12 |
| E. N. Central | 1,962 | 1,995 | 3,649 | 2,650 | –27 | 275,321 | 292,258 | + 6 |
| W. N. Central | 1,732 | 954 | 1,344 | 1,906 | +42 | 301,277 | 350,202 | +16 |
| South Central | 1,068 | 761 | 1,422 | 1,739 | +22 | 97,170 | 119,038 | +23 |
| Mountain | 149 | 96 | 225 | 122 | –46 | 17,352 | 16,491 | – 5 |
| Pacific | 1,855 | 1,675 | 2,054 | 2,329 | +13 | 51,347 | 55,846 | + 9 |
| U. S. | 13,353 | 12,339 | 19,213 | 22,392 | +17 | 964,811 | 1,084,970 | +12 |

Output of chicks by commercial hatcheries in August was 17 per cent larger than the record high output of August 1941. Compared with August 1941, the output of chicks increased 50 per cent in New England, 42 per cent in the West North Central states, 22 per cent in the South Atlantic and South Central states, 13 per cent in the Pacific Coast states, and 9 per cent in the mid-Atlantic states. Reductions reported were 46 per cent in the Mountain states and 27 per cent in the East North Central states.

The number of eggs set was 18 per cent larger than the number set in August 1941. Increases of 56 per cent in New England, 40 per cent in the West North central, 21 per cent in the South Atlantic, 20 per cent on the Pacific Coast, and 18 per cent in the mid-Atlantic states were reported. Decreases in eggs set were 24 per cent in the East North Central states and 50 per cent in the Mountain states.

Of the chicks hatched in August, 87 per cent were of the heavy breeds, compared with 88 per cent in August last year.

—Comment from U. S. D. A. Hatchery Production Report.

### Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexing

| Geographic Division | Chicks booked Sept. 1 | % Light breed hatched |  | % Heavy breed hatched |  | Sexing |
|---|---|---|---|---|---|---|
|  | % change from Sept. 1, 1941 | Aug. 1941 | Aug. 1942 | Aug. 1941 | Aug. 1942 | % change from Aug. 1941 |
| New England | +114 | 0 | 0 | 100 | 100 | +100 |
| Middle Atlantic | – 6 | 4 | 3 | 96 | 97 | – 37 |
| South Atlantic | + 15 | 1 | 0 | 99 | 100 | – 30 |
| E. N. Central | – 41 | 14 | 19 | 86 | 81 | – 31 |
| W. N. Central | +121 | 31 | 40 | 69 | 60 | + 82 |
| South Central | – 2 | 11 | 14 | 89 | 86 | + 35 |
| Mountain | — | 11 | 17 | 89 | 83 | — |
| Pacific | + 43 | 40 | 29 | 60 | 71 | + 28 |
| U. S. | + 32 | 12 | 13 | 88 | 87 | – 12 |

# RESULTS OF LAYING TESTS

With only three weeks to go in the 1941-42 laying test year, the Crooks Farm pen of Rhode Island Reds at the Pennsylvania Test strengthened its position as the top pen in the entire country to September 1 by increasing its lead to 115 points over the Hillview Reds in second position.

In the White Leghorn division, the Babcock Hatchery pen gained on the Holser Valley Farm pen, narrowing the latter pen's lead to 7 points, promising a close race at the finish line.

An interesting observation is that White Leghorns hold 11 of the top 20 pen positions, while Rhode Island Reds hold eight, and Barred Rocks one.

The Harco Orchards' Red hen at the Maine test continued to maintain first position in the individual birds, all breeds, by laying 28 eggs during August, but was being pressed by J. A. Hanson's White Leghorn hen at Storrs.

Arizona continued to lead all other tests in having the highest average of points per hen, but the lead over Storrs was reduced to less than a full point.

Because of the high turnover of labor during the past year and the difficulty of obtaining competent help, the Michigan Laying test has announced that it will suspend operations for the duration of the war.

## Twenty High Pens, All Breeds, to September 1—(335 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 3623 | 3856.35 | Pennsylvania |
| Hillview Poultry Farm | Rhode Island Red | 3616 | 3741.45 | California |
| Holser's Valley Farm | White Leghorn | 3479 | 3725.05 | Storrs |
| Babcock's Hatchery | White Leghorn | 3634 | 3717.45 | Pennsylvania |
| W. H. Wilson | Rhode Island Red | 3469 | 3700.05 | Georgia |
| Harco Orchards | Rhode Island Red | 3384 | 3669.70 | Rhode Island |
| J. A. Hanson | White Leghorn | 3429 | 3650.50 | Western New York |
| Foreman Poultry Farm | White Leghorn | 3366 | 3626.55 | Missouri |
| Kauder's Pedigreed Leghorns | White Leghorn | 3385 | 3623.95 | Storrs |
| J. A. Hanson | White Leghorn | 3427 | 3600.55 | Georgia |
| Crooks Farm | Rhode Island Red | 3387 | 3599.80 | Storrs |
| Thomas H. Mettler | Rhode Island Red | 3630 | 3592.85 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 3281 | 3571.10 | Texas |
| G. B. Treadwell | Rhode Island Red | 3378 | 3542.40 | Maine |
| George M. Anthony | White Leghorn | 3385 | 3529.60 | Pennsylvania |
| J. A. Hanson | White Leghorn | 3288 | 3505.80 | Pennsylvania |
| Dryden Poultry Farm | Barred Rock | 3441 | 3500.55 | Pennsylvania |
| Kauder's Pedigreed Leghorns | White Leghorn | 3220 | 3485.45 | Pennsylvania |
| J. A. Hanson | White Leghorn | 3319 | 3484.90 | Storrs |
| Peckham Farm | Rhode Island Red | 3268 | 3480.20 | Rhode Island |

## High Pen in Each Test to September 1—(335 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 3623 | 3856.35 | Pennsylvania |
| Hillview Poultry Farm | Rhode Island Red | 3616 | 3741.45 | California |
| Holser's Valley Farm | White Leghorn | 3479 | 3725.05 | Storrs |
| W. H. Wilson | Rhode Island Red | 3469 | 3700.05 | Georgia |
| Harco Orchards | Rhode Island Red | 3384 | 3669.70 | Rhode Island |
| J. A. Hanson | White Leghorn | 3429 | 3650.50 | Western New York |
| Foreman Poultry Farm | White Leghorn | 3366 | 3626.55 | Missouri |
| Kauder's Pedigreed Leghorns | White Leghorn | 3281 | 3571.10 | Texas |
| G. B. Treadwell | Rhode Island Red | 3378 | 3542.40 | Maine |
| Rapp's Poultry Farm | White Leghorn | 3216 | 3433.90 | Hunterdon, N. J. |
| Holser's Valley Farm | White Leghorn | 3348 | 3419.10 | Passaic, N. J. |
| Foreman Poultry Farm | White Leghorn | 3151 | 3347.25 | Central New York |
| Gold Spot Hatchery | White Leghorn | 3136 | 3305.60 | Arizona |
| Creighton Brothers | White Leghorn | 3155 | 3203.15 | Florida |
| Robert Chapman | Rhode Island Red | 3176 | 3112.55 | Oklahoma |
| Crooks Farm | Rhode Island Red | 2918 | 3014.65 | Long Island |
| J. J. Warren | Rhode Island Red | 2870 | 3001.30 | Michigan |

## High Pen in Each Test for August

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 321 | 350.40 | Pennsylvania |
| Nelson Leghorn Breed. Fm. | White Leghorn | 328 | 342.70 | California |
| Kauder's Pedigreed Leghorns | White Leghorn | 309 | 337.42 | Western New York |
| To-Lani Farm | Rhode Island Red | 317 | 334.90 | Georgia |
| Bodine's Pedigreed Leghorns | White Leghorn | 309 | 334.50 | Central New York |
| Foreman Poultry Farm | White Leghorn | 296 | 316.75 | Maine |
| Harco Orchards | Rhode Island Red | 288 | 314.85 | Rhode Island |
| Sunrise Poultry Farm | White Leghorn | 298 | 307.35 | Michigan |
| Holser's Valley Farm | White Leghorn | 297 | 305.70 | Passaic, N. J. |
| Foreman Poultry Farm | White Leghorn | 279 | 304.40 | Storrs |
| Booth Farms & Hatchery | White Leghorn | 279 | 294.95 | Oklahoma |
| Lindstrom Poultry Farm | White Leghorn | 263 | 283.95 | Missouri |
| Rapp's Poultry Farm | White Leghorn | 255 | 277.85 | Hunterdon, N. J. |
| Del Rio Farm | White Leghorn | 252 | 269.25 | Arizona |
| Marshall Farm | White Leghorn | 254 | 268.85 | Florida |
| Charles D. Deisher | White Leghorn | 252 | 263.55 | Texas |
| A. J. Urquhart | Barred Rock | 239 | 253.90 | Long Island |

## High Pen in Each Breed to September 1—(335 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 3623 | 3856.35 | Pennsylvania |
| Holser's Valley Farm | White Leghorn | 3479 | 3725.05 | Storrs |
| Dryden Poultry Farm | Barred Rock | 3441 | 3500.55 | Pennsylvania |
| Joachim Breeding Farm | New Hampshire | 3262 | 3464.35 | Storrs |
| Riley Poultry Farm | White Rock | 3109 | 3167.15 | Storrs |
| Harvey E. Taylor | White Wyandotte | 2755 | 2885.20 | Texas |
| T. D. Brown | White Minorca | 2522 | 2660.65 | Texas |
| Laclede Hatchery | Australorp | 2466 | 2644.65 | Missouri |
| Imperial Breeding Farm | White Giant | 2532 | 2613.35 | Maine |
| Mrs. C. W. Reynolds | Columbian Rock | 2456 | 2517.70 | Missouri |
| Raymond S. Thomas | Ancona | 2355 | 2447.60 | Pennsylvania |
| Horne's Hatchery | Black Minorca | 2229 | 2430.05 | Texas |
| Imperial Poultry Farm | New Hampshire White | 2177 | 2321.15 | Missouri |
| Maine Test Pen | Cross | 2157 | 2225.75 | Maine |
| Miami Chick Hatchery | Buff Rock | 2058 | 2086.05 | Michigan |
| Iowa Master Breeders | Buff Orpington | 2081 | 1986.75 | Texas |
| Charles A. Richardson | Buff Leghorn | 2042 | 1929.75 | Hunterdon, N. J. |
| Henry F. Waitt | Buff Minorca | 1925 | 1924.05 | Maine |
| Wellington Wells | Silver Laced Wyandotte | 1931 | 1803.75 | Maine |
| Philip Maddux | Black Leghorn | 1511 | 1414.45 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 1413 | 1379.20 | Florida |

## High Hen in Each Breed to September 1—(335 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 319 | 350.65 | Maine |
| J. A. Hanson | White Leghorn | 325 | 344.00 | Storrs |
| Joachim Breeding Farm | New Hampshire | 314 | 327.35 | Storrs |
| Dryden Poultry Farm | Barred Rock | 294 | 321.30 | Storrs |
| Raymond S. Thomas | Ancona | 284 | 311.10 | Pennsylvania |
| Laclede Hatchery | Australorp | 280 | 305.30 | Missouri |
| G. W. Schottman | White Wyandotte | 274 | 300.15 | Missouri |
| Bagby Poultry Farm | White Rock | 270 | 288.25 | Texas |
| Imperial Breeding Farm | White Giant | 266 | 276.05 | Maine |
| Harry L. Phillips | Columbian Rock | 253 | 269.85 | Missouri |
| Imperial Breed. Farm | New Hampshire White | 248 | 269.15 | Missouri |
| Dryden Poultry Farm | Cross | 262 | 267.50 | California |
| T. D. Brown | White Minorca | 235 | 252.70 | Texas |
| Horne's Hatchery | Black Minorca | 228 | 249.85 | Texas |
| Charles A. Richardson | Buff Leghorn | 226 | 217.65 | Hunterdon, N. J. |
| Donald C. Chandler | Silver Laced Wyandotte | 219 | 217.35 | Maine |
| Henry F. Waitt | Buff Minorca | 206 | 216.75 | Maine |
| Iowa Master Breeders | Buff Orpington | 243 | 204.95 | Texas |
| Miami Chick Hatchery | Buff Rock | 188 | 203.75 | Michigan |
| Philip Maddux | Black Leghorn | 181 | 186.50 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 148 | 152.25 | Florida |

## High Hen in Each Test to September 1—(335 Days)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 319 | 350.65 | Maine |
| J. A. Hanson | White Leghorn | 325 | 344.00 | Storrs |
| Foreman Poultry Farm | White Leghorn | 320 | 339.15 | Missouri |
| Crooks Farm | Rhode Island Red | 310 | 338.45 | Pennsylvania |
| Alampi Poultry Farm | Rhode Island Red | 308 | 338.25 | Passaic, N. J. |
| Kauder's Pedigreed Leghorns | White Leghorn | 315 | 333.70 | Georgia |
| J. A. Hanson | White Leghorn | 315 | 332.95 | Western New York |
| W. A. Seidel | White Leghorn | 308 | 331.95 | Texas |
| J. A. Hanson | White Leghorn | 305 | 331.90 | Rhode Island |
| Foreman Poultry Farm | White Leghorn | 298 | 326.65 | Central New York |
| George A. Pearce | New Hampshire | 310 | 320.50 | Hunterdon, N. J. |
| Bagby Poultry Farm | Rhode Island Red | 301 | 320.40 | Arizona |
| E. B. Parmenter | Rhode Island Red | 301 | 320.30 | California |
| J. K. Bedell | White Leghorn | 301 | 318.80 | Florida |
| W. A. Downs | White Leghorn | 293 | 312.55 | Michigan |
| Foreman Poultry Farm | White Leghorn | 299 | 305.50 | Oklahoma |
| E. B. Parmenter | Rhode Island Red | 272 | 296.45 | Long Island |

## Twenty High White Leghorn Pens to September 1—(335 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Holser's Valley Farm | 3479 | 3725.05 | Storrs |
| Babcock's Hatchery | 3634 | 3717.45 | Pennsylvania |
| J. A. Hanson | 3429 | 3650.50 | Western New York |
| Foreman Poultry Farm | 3366 | 3626.55 | Missouri |
| Kauder's Pedigreed Leghorns | 3385 | 3623.95 | Storrs |
| J. A. Hanson | 3427 | 3600.55 | Georgia |
| Kauder's Pedigreed Leghorns | 3281 | 3571.10 | Texas |
| George M. Anthony | 3385 | 3529.60 | Pennsylvania |
| J. A. Hanson | 3288 | 3505.80 | Pennsylvania |
| Kauder's Pedigreed Leghorns | 3220 | 3485.45 | Pennsylvania |
| J. A. Hanson | 3319 | 3484.90 | Storrs |
| Foreman Poultry Farm | 3287 | 3455.30 | Storrs |
| Babcock's Hatchery | 3411 | 3444.80 | Georgia |
| Kauder's Pedigreed Leghorns | 3185 | 3442.60 | Western New York |
| Foreman Poultry Farm | 3409 | 3441.35 | Maine |
| Rapp's Poultry Farm | 3216 | 3433.90 | Hunterdon, N. J. |
| W. A. Seidel | 3225 | 3422.10 | Texas |
| Holser's Valley Farm | 3348 | 3419.10 | Passaic, N. J. |
| Kauder's Pedigreed Leghorns | 3174 | 3388.65 | Storrs |
| Nelson Leghorn Breeding Farm | 3222 | 3386.85 | California |

## Twenty High Rhode Island Red Pens to September 1—(335 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Crooks Farm | 3623 | 3856.35 | Pennsylvania |
| Hillview Poultry Farm | 3616 | 3741.45 | California |
| W. H. Wilson | 3469 | 3700.05 | Georgia |
| Harco Orchards | 3384 | 3669.70 | Rhode Island |
| Crooks Farm | 3387 | 3599.80 | Storrs |
| Thomas H. Mettler | 3630 | 3592.85 | Storrs |
| To-Lani Farm | 3417 | 3566.95 | Georgia |
| G. B. Treadwell | 3378 | 3542.40 | Maine |
| Peckham Farm | 3268 | 3480.20 | Rhode Island |
| E. B. Parmenter | 3232 | 3444.05 | California |
| Ford's Riverbank Farm | 3254 | 3409.45 | Storrs |
| Thomas H. Mettler | 3383 | 3398.85 | Storrs |
| C. C. Hersey | 3250 | 3397.90 | Storrs |
| G. B. Treadwell | 3277 | 3389.30 | Storrs |
| E. B. Parmenter | 3182 | 3355.05 | Pennsylvania |
| J. J. Warren | 3107 | 3339.80 | Rhode Island |
| Crooks Farm | 3083 | 3326.40 | Rhode Island |
| W. H. Wilson | 3180 | 3317.40 | Georgia |
| J. J. Warren | 3087 | 3310.10 | Maine |
| J. J. Warren | 3104 | 3292.55 | Storrs |

## Twenty High New Hampshire Pens to September 1—(335 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Joachim Breeding Farm | 3262 | 3464.35 | Storrs |
| George A. Pearce | 3250 | 3428.40 | Hunterdon, N. J. |
| George A. Pearce | 3028 | 3178.55 | Storrs |
| Joachim Breeding Farm | 2988 | 3161.65 | Hunterdon, N. J. |
| H. S. & M. E. Twichell | 2874 | 3086.80 | Western New York |
| Ebenwood Farm | 2903 | 3081.75 | Storrs |
| Hubbard Farms | 2973 | 3065.90 | Georgia |
| Ebenwood Farm | 2848 | 3057.80 | Rhode Island |
| Joachim Breeding Farm | 2937 | 3031.50 | Pennsylvania |
| Hubbard Farms | 2912 | 3013.60 | Pennsylvania |
| Hubbard Farms | 2880 | 3012.70 | Western New York |
| Howard Breeding Farm | 2818 | 3009.45 | California |
| James H. Horne | 2832 | 3008.05 | Storrs |
| Del Rio Farm | 2806 | 2989.30 | Arizona |
| Forest Hill Poultry Farm | 2801 | 2930.15 | Storrs |
| Fairport Hatchery | 2839 | 2929.00 | Western New York |
| Crescent Farms | 2758 | 2926.15 | Florida |
| Pine Mountain Valley Farms | 2810 | 2891.10 | Georgia |
| Clarence E. Colby | 2753 | 2889.55 | Storrs |
| Hubbard Farms | 2749 | 2877.00 | Storrs |

## Twenty High Barred Plymouth Rock Pens to September 1—(335 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Farm | 3441 | 3500.55 | Pennsylvania |
| Dryden Poultry Farm | 3245 | 3353.80 | Storrs |
| Dryden Poultry Farm | 3199 | 3321.45 | Storrs |
| Norman Amidon | 3122 | 3221.30 | Maine |
| Dryden Poultry Farm | 3075 | 3139.45 | California |
| Harco Orchards | 3175 | 3106.55 | Maine |
| A. J. Urquhart | 3029 | 3097.00 | Maine |
| Harco Orchards | 2915 | 3077.00 | Storrs |
| Harco Orchards | 2867 | 3037.70 | Rhode Island |
| Parks Barred Rock Farm | 2879 | 3007.50 | Pennsylvania |
| The Fisher Orchards | 2805 | 3003.15 | Pennsylvania |
| J. W. Schaible | 2991 | 2992.00 | Hunterdon, N. J. |
| A. J. Urquhart | 2771 | 2988.35 | Rhode Island |
| David T. Cohen | 2821 | 2970.40 | Storrs |
| A. J. Urquhart | 2891 | 2968.10 | Passaic, N. J. |
| Peachblow Farm | 2873 | 2961.60 | Maine |
| Penn's Poultry Breeding Farm | 2897 | 2959.55 | Texas |
| A. J. Urquhart | 2841 | 2950.05 | Storrs |
| Hockhockson Farm | 2769 | 2912.20 | Hunterdon, N. J. |
| P. R. McCormack | 2758 | 2894.85 | Texas |

## Twenty High White Plymouth Rock Pens to September 1—(335 Days)

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Riley Poultry Farm | 3109 | 3167.15 | Storrs |
| Ralph DeYoung | 2921 | 3047.65 | Maine |
| Bagby Poultry Farm | 2776 | 2959.40 | Texas |
| Four Winds Farm | 2828 | 2955.10 | Michigan |
| Missouri Valley Hatchery | 2873 | 2939.35 | Georgia |
| Missouri Valley Poultry Farm | 2707 | 2881.55 | Texas |
| Riley Poultry Farm | 2726 | 2763.10 | Georgia |
| Carter-Dunham | 2519 | 2703.25 | Texas |
| A. C. Lawton | 2560 | 2688.10 | Storrs |
| Holtzapple Poultry Farm | 2526 | 2636.80 | Pennsylvania |
| Carter-Dunham | 2454 | 2623.95 | Georgia |
| Inspiration Acres | 2686 | 2606.05 | Florida |
| St. Paul Hatchery | 2485 | 2601.55 | Michigan |
| St. Paul Hatchery | 2511 | 2598.05 | Florida |
| Knepley Hatchery | 2524 | 2559.10 | Oklahoma |
| Superior Hatchery | 2468 | 2558.40 | Texas |
| Imperial Breeding Farm | 2554 | 2534.95 | Storrs |
| Booth Farms & Hatchery | 2418 | 2528.40 | Texas |
| Riley Poultry Farm | 2466 | 2518.45 | Michigan |
| Kerr Chickeries. | 2420 | 2501.20 | Maine |

## Average Production and Mortality, Each Test, to September 1—(335 Days)

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for Aug. | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Arizona | 390 | 204.23 | 213.94 | 24.94 | 1.03 | 14.88 |
| Storrs | 1,352 | 205.11 | 213.12 | 24.78 | 1.55 | 15.02 |
| Pennsylvania | 1,105 | 203.26 | 211.16 | 24.68 | 1.72 | 16.02 |
| Hunterdon, N. J. | 624 | 202.93 | 209.91 | 24.68 | 1.44 | 14.11 |
| California | 598 | 203.20 | 209.29 | 24.58 | 1.34 | 15.56 |
| Rhode Island | 611 | 194.72 | 206.96 | 25.24 | 2.15 | 18.19 |
| Georgia | 1,326 | 198.76 | 204.05 | 24.52 | 1.81 | 17.50 |
| Western New York | 975 | 192.57 | 201.96 | 24.96 | 2.16 | 14.06 |
| Florida | 1,118 | 191.83 | 198.38 | 24.68 | 1.88 | 15.30 |
| Texas | 1,456 | 189.75 | 197.15 | 24.84 | 2.13 | 18.55 |
| Passaic, N. J. | 871 | 190.01 | 196.28 | 24.66 | 3.33 | 18.83 |
| Maine | 988 | 187.06 | 190.83 | 24.40 | 1.52 | 15.19 |
| Central New York | 1,066 | 179.59 | 187.25 | 24.84 | 1.60 | 17.08 |
| Missouri | 780 | 173.53 | 185.04 | 25.32 | 2.70 | 18.47 |
| Oklahoma | 650 | 174.17 | 175.39 | 24.14 | 1.56 | 16.31 |
| Michigan | 871 | 167.98 | 170.54 | 24.30 | 1.72 | 22.28 |
| Long Island | 1,092 | 167.27 | 168.75 | 24.16 | 1.38 | 18.14 |
| All Tests | 15,873 | 189.76 | 196.47 | 24.68 | 1.82 | 16.79 |

GERMAN FOOD authorities, according to the British journal, Modern Poultry Keeping, have issued orders that all hens more than two years old must be slaughtered because they consume too much feed in proportion to the number of eggs they produce.

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STATEMENT OF MANAGEMENT AND OWNERSHIP OF EVERYBODYS POULTRY MAGAZINE PUBLISHING COMPANY, INC., PUBLISHERS OF THE NATIONAL POULTRY DIGEST

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ROLAND C. HARTMAN, Mgr.

SWORN TO and subscribed before me, a notary public, in the County and State aforementioned, on October 1, 1942.

N. R. BURGER, Notary Public

My commission expires April 13, 1943.

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# Control of Respiratory Diseases

By H. VAN ROEKEL

Mass. Agricultural Experiment Station

*Condensed from a Talk*

THE most common respiratory diseases in poultry are infectious bronchitis, infectious laryngotracheitis, fowl pox, infectious coryza, and fowl cholera. The first three diseases are caused by specific viruses, and last two, by specific bacteria. An accurate differential diagnosis is essential for proper treatment. Some of the features of each disease are summarized in the accompanying table. The observation of a single characteristic or a combination of characteristics may sometimes permit an accurate diagnosis of the disease in question.

Outbreaks which are difficult or impossible to diagnose in the field may occur, and in such cases, laboratory facilities should be called upon for assistance. It must be recognized that border line cases do occur. On the basis of history, symptoms, and lesions, some cases might conform to the description of any one of the several diseases.

## Early Diagnosis Important

Too frequently a flock may have been ill for a week or several weeks before specimens are submitted for an accurate diagnosis. In such cases very little can be expected of any efforts to control the current outbreak because the infection may have spread throughout the flock. If, however, the disease is reported at its early stages when possibly

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only one pen or house is affected, and it should prove to be infectious laryngotracheitis, fowl pox, fowl coryza, or fowl cholera, measures that often will or may be helpful in controlling the disease can be instituted.

## Diagnosing Respiratory Diseases

A diagnosis of infectious bronchitis may be made when findings such as sudden onset of the disease; rapid spread; presence of tracheal and bronchial rattle; no evidence of mortality nor swollen tissues of the face and wattles; no pox scabs nor lesions on the skin; and a flock recovery from respiratory symptoms within 10 days to three weeks are observed.

Infectious laryngotracheitis may be identified as such when the onset of the disease is sudden and the birds show a violent coughing and gasping, together with croupous and bloody material in the trachea, and a mortality.

Infectious coryza does not lend itself to a field diagnosis as readily as other diseases of this group. Features quite characteristic of the disease are facial swellings around the eyes, sinuses, and wattles; a nasal discharge; slow spreading of the infection, and a low mortality. Since this is a bacterial disease, it is highly advisable that it be accurately identified by the isolation of the organism.

Fowl pox may be definitely identified by the presence of pox lesions on the skin of the face, comb, and wattles, and other parts of the body. Pox lesions confined to the mucous membranes of the eyes, oral cavity, larynx, and trachea should be checked by laboratory methods.

Fowl cholera symptoms and lesions should be definitely checked by laboratory examination and the isolation of the causative agent.

## Be Sure What It Is

Field diagnoses of respiratory diseases should be made promptly whenever possible in order to expedite control measures. However if the diagnosis is at all doubtful, the case should be referred to an agency where an accurate diagnosis may be obtained.

The control of respiratory diseases is a matter of great interest and importance to the flock owner. Infectious laryngotracheitis and fowl pox may be successfully prevented through vaccination. In some instances, actual outbreaks may be controlled by vaccinating the non-infected pens in the flock. Recent investigational findings reveal that infectious coryza may be held in check by feeding sulfathiazole in the mash. Due to the great demand for this drug in other fields of human and veterinary medicine, it is difficult to obtain and is too expensive for practical use. If it is obtainable, however, the drug should be given under

## CHARACTERISTICS OF SOME OF THE RESPIRATORY DISEASES IN POULTRY

| Characteristics | Infectious Bronchitis | Infectious Laryngotracheitis | Infectious Coryza | Fowl Pox | Fowl Cholera |
|---|---|---|---|---|---|
| Cause | Virus | Virus | Bacterium | Virus | Bacterium |
| Incubation | 24 hrs. or less | 48-72 hrs. | 24 hrs. & sometimes longer | 6 days or longer | Several days or weeks |
| Spread through flock | Very rapid | Rapid (2 or 3 days)<br>Slow (3-4 weeks) | Rapid or slow | Comparatively slow | Frequently slow |
| Coughing | Very frequently | Frequently, gasp with head and neck extended | Very infrequently | Very infrequently | Very infrequently |
| Sneezing | Very frequently | Frequently | Frequently | Very infrequently | Very infrequently |
| Tracheal rattle | Usually pronounced | Usually pronounced | Very infrequent | Very infrequent | Seldom |
| Nasal discharge | Very frequent | Occasional to frequent | Very frequent | Occasional | Occasional to frequent |
| Facial swelling | Observed in chicks | Occasional | Usually pronounced & definite | Occasional | Occasional to frequent |
| Swollen wattles | None | Seldom | Frequent | None | Frequent |
| Reaction in larynx & trachea | Mucous lining swollen and sometimes small hem., clear or turbid mucus | Bloody mucus & frequently a croupous membrane | Infrequently affected | Occasionally false membranes | Excess mucus infrequently |
| Caseous material | Bronchi & air sacs | Plugs frequently in larynx, nasal passage, sinuses, and eyes | Infrequent | Sinuses, eyes, and air sacs | Infrequent in sinuses, wattles, and air sacs |
| Duration in flock | 10-21 days | 1-2 wks., slowly spreading 3-4 wks. | 10 days to several months | 3 wks. or longer | Few days to several weeks |
| Egg production | Marked drop for 6-8 wks., quality poor | Marked drop for several wks. | Moderately affected | Moderately affected | Slightly affected |
| Mortality | Mature birds none, chicks may be high | High among mature birds | Low | Low to high | Low to high |
| Immunity | Apparently complete | Good | Incomplete | Good | Doubtful |
| Vaccination | None | Effective | None | Effective | None |
| Drug response | None | None | Sulfathiazole appears helpful | None | None |
| Cloacal reaction | Slight to none | Definite | None | Quite definite | Doubtful |
| Carriers | Yes | Yes | Yes | Yes | Yes |

competent supervision.

Field and laboratory observations reveal that outbreaks of infectious bronchitis among laying birds may be prevented by subjecting such birds to the infection during the growing period. Young growing stock suffers very little from infectious bronchitis and apparently seems to become immune to further attacks of the disease during their laying age. Flock immunity to this infection during the laying period will save the poultrymen thousands of dollars from loss in egg production, poor egg quality, and low hatchability.

### Must Eradicate Fowl Cholera

Fowl cholera is difficult to control when the disease once becomes established in a flock. To successfully combat this disease, a carefully planned eradication program must be followed in every detail to completely eliminate the disease from the premises.

During the past year, two other respiratory diseases among chickens have been reported. These important findings reveal that the problem of respiratory infections in poultry is not a simple one and further investigation is essential both in the field and in the laboratory.

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## *Service Club Aids 4-H Chick Projects*

In at least 50 counties of Tennessee this year, 4-H Club members will receive assistance and encouragement in carrying out club chick projects.

Typical of the program followed is that of the Cleveland, Tenn., Rotary Club, which is sponsoring about 200 such projects in Bradley County. Under the plan, any boy or girl in the county between the ages of 10 and 20 may make application. Upon approval, the applicant will be provided with 50 chicks and 50 pounds of starter mash. A note will be signed by the applicant and the parents for $7 to cover cost of feed and chicks, and the 4-H Club member will agree to return in September 14 cockerels to the Rotary Club. These will be sold to take care of the $7 note. If the 14 cockerels bring more than $7, the difference will be paid to the member.

—Hatchery Tribune, October 1942.

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¶¶ A CHICAGO market circular of July 8, 1858, quoted fresh eggs at from three to four cents a dozen and young chickens from 10 to 12 cents each, says Lorraine L. Engel in the U. S. Egg and Poultry Magazine for October 1942.

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*Managing Breeders to Get . . .*

# More Chicks per Hen

### By W. F. LAMOREUX

*Condensed from Poultry Tribune*

THE war program demands more eggs. One of the most obvious and easy ways of meeting that demand is to hatch more chicks from outstanding hens and sires, fewer from "scrubs." Unfortunately, many of the outstanding birds have no chance to make their maximum contribution to the war effort, because their care and management result in:

1—A short breeding season,
2—Low egg production during the breeding season,
3—Low fertility, and
4—Low hatchability.

This is not an old-fashioned war. Reconsider these points in your treatment of next year's breeding birds, and make sure they are getting the chance they deserve.

Because tradition says that chicks should be reared in the spring, we hatch vast numbers of them from second, third, and fourth rate parents, and then during the rest of the year we eat for breakfast the eggs of progeny tested hens proven to be of great breeding value. These birds are the hope of the poultryman's future, yet, during much of their productive year, that hope is forgotten. In the poultry houses of the nation are millions of pullets whose only recommendation is that their parents "could have been worse." Yet, into the frying pan go the most valuable eggs in the country, condemned for no greater wrong than being laid "out-of-season."

It is granted that "out-of-season" chicks may start life with certain handicaps, but good blood-lines can suffer some disadvantages and still win the competition.

Every poultry breeder may well stop and ask himself, "Am I making the greatest possible use of my best birds? Or am I sabotaging the efforts of some of the best chickens in poultrydom?" Remember, this isn't an old-fashioned war! Let's kill a few traditions.

### Give the Breeders a "Rest"

There is an old argument about the need for that annual "rest," but the time for argument is past. It was all based on a mistake in the first place, because what was really meant was to give the hens a "chance," not

Poultry Dairy Publishing Co., Inc., Mount Morris, Ill.
(Poultry Tribune, November 1942)

a "rest." There are at least three good reasons for giving that "chance" which every poultry breeder should consider. They are low egg production, low fertility, and low hatchability.

Low Egg Production during the breeding season is a natural result of forced production during the late fall and winter. We must recognize that artificial illumination cannot be expected to increase annual egg production. It merely causes some of the eggs to be laid during a season, when, without lights they would not be. By providing 13 hours or more of light daily, it is possible to delay the molt and to stimulate the hens to lay more eggs during the fall and winter.

These eggs represent a loss, and the better the hen, the greater the loss. If the hen is a good one, her eggs are worth more for hatching than for market. Since the lights do not increase annual production, the eggs she lays before the breeding season begins are merely subtracted from those laid afterward. It's just an expensive trade of some good hatching eggs for some ordinary market eggs. But that trade is even worse than it seems because there aren't enough really good hens to furnish the required number of chicks anyway. When the production of good hens is reduced, more of the inferior hens are used in breeding pens and the average quality of the chicks hatched and the pullets housed is correspondingly lower than it could have been. When such things happen in industry, we call them sabotage!

### Low Fertility With Low Production

Low Fertility follows as a natural result of a low rate of egg production. Convincing evidence has been obtained at the New York and Missouri Agricultural Experiment Stations that hens are less fertile when their rate of production is low than when it is high. Rate of production can be measured in several different ways, and those considered were (1) the number of eggs laid each week, (2) the number of eggs laid during a six-week period, and (3) the number of eggs in a "clutch," or laid on consecutive days. When large numbers of hens and eggs were considered, each of these measures showed that a rapid rate of egg production was associated with relatively high fertility.

The relatively high infertility among hens that lay at a slow rate is shown by the following data, compiled at Cornell University, concerning infertility among eggs laid by hens which laid at different rates during a 6-week period in the middle of the breeding season.

| Rate of Laying | Infertile Eggs (per cent) |
|---|---|
| 13-22 eggs in 6 weeks | 24.4 |
| 23-31 eggs in 6 weeks | 15.6 |
| 32-40 eggs in 6 weeks | 13.0 |

Thus the proportion of eggs infertile (24.4 per cent) among those laid

at the slow rate was nearly twice as great as among the eggs laid at a rapid rate.

This difference apparently results from the fact that hens which are laying at a rapid rate mate much more frequently than do other birds. This is well shown by the following data obtained at CornellUniversity.

| Investigator and Length of Experimental Period | Hens No. | Eggs Laid Ave. No. | Matings Ave. No. |
|---|---|---|---|
| Wilkins, 18 days | 11 | 0.0 | 4.1 |
| | 16 | 6.2 | 13.3 |
| | 13 | 13.6 | 22.8 |
| Heuser, 13 days | 4 | 0.0 | 2.0 |
| | 15 | 4.2 | 14.9 |
| | 17 | 9.4 | 21.8 |

Low Hatchability must also be added to the list of penalties associated with a low rate of egg production. This was shown by E. M. Funk, Missouri Agricultural Experiment Station. Among fertile eggs laid in large "clutches," a larger proportion was able to hatch than was possible among eggs laid in small clutches, and therefore at a slower rate.

| Size of "Cluch" No. Eggs | Eggs Set No. | Fertile Eggs Hatched–Percent |
|---|---|---|
| 1 | 845 | 58.9 |
| 2 | 1727 | 67.6 |
| 3 | 1676 | 71.5 |
| 4 | 1129 | 72.4 |
| 5 | 698 | 71.2 |
| 6 | 464 | 78.0 |

It is now clear that any system of management that results in relatively low egg production during the breeding season may involve a fourfold loss: (1) the exchange of valuable hatching eggs for less valuable market eggs laid at another season, (2) the unnecessary use of relatively poor birds as breeders, (3) relatively low fertility, and (4) poor hatchability. Considered alone no one of these losses may appear important, and hence they pass unnoticed by many poultrymen. Considered together, the cumulative effect of these losses can do much to prevent attainment of the war-time goals of the poultry industry.

### A Program for Breeding Hens

Maximum Egg Production during the breeding season can do much to reduce these losses. High production can be encouraged by means of the following program, assuming that eggs for hatching are wanted on February 1.

1. Encourage prospective breeding hens to molt not later than October 15 to November 1.

2. Do not furnish artificial light during the molting period. The short days of winter are favorable for rapid recovery of body weight following the molt; long days are not. Artificial light during this period will retard recovery of body weight and encourage the laying of eggs at the expense of production during the breeding season. Use artificial light to provide the hens a 13-hour day beginning January 17, or about two weeks before hatching eggs are wanted.

3. Feed and care for the birds as well as you know how. Remember it is no less strain upon the hen to grow a new coat of feathers than it is to lay eggs. Some evidence indi-

cates that the strain resulting from a rapid molt is even greater than that of egg production. You are not giving the hen a "rest" during the molt. You should be giving her a "chance" to do a hard job well, grow a new coat of feathers, gain enough in body weight to begin the breeding season with some reserve energy, and to make up for any nutritional deficiencies, known or unknown, that may have developed during the previous year. If you must cheat on the breeding hens' diet, always do it after the breeding season, never before.

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## *Financing Broiler Raising in Maine*

Broiler raising requires considerable financing, running $400 to $600 per 1,000. Apparently, individual poultrymen are unable or disinclined to accomplish this financing on their own. The situation at this time in Maine is that the vast majority of broilers are being produced by three or four of the larger live poultry dealers and some of the grain companies under two different types of arrangement:

(1) **Live Poultry Dealer-Poultryman Contract:** The poultry dealer buys the chicks, fuel, supplies, and feed. The poultryman furnishes the buildings, equipment, and labor, for which he receives as his pay a fixed sum, usually 10 cents per bird raised to 12 weeks. The dealer has title to the chicks throughout.

(2) **Grain Company-Poultryman Arrangement:** The grain company furnishes credit for chicks, feed, fuel, and supplies. Chicks are usually purchased through the grain dealer who has a contract arrangement with a hatchery. Feed, of course, is always purchased through dealer, and supplies usually are. The birds are raised under close supervision. Settlement is made at the time the broilers are sold. The grower receives full sale return less the amount of indebtedness, including an interest charge and insurance. The contract contains a provision protecting the poultryman from loss.

There is also a considerable volume of broilers being produced by poultrymen doing their own financing or obtaining credit from one of several agencies: Local banks, Production Credit Association, Farm Security Administration, Emergency Crop and Feed Loan Office. With this type of credit there is no limitation on profits or on losses other than the producers own ability and on the price relationship of poultry meat and feed. Chicks, feed, and supplies may be bought on a competitive basis.

—Maine "Timely Topics for Poultrymen," October 1942.

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# Four-Day-a-Week Trapnesting

By **HORACE DRYDEN**

Modesto, California

*Condensed from the Dryden Poultry Bulletin*

WE have made a decision at long last which should and could have been made 20 years ago. We have decided to test our future breeders by trapnesting four consecutive days a week rather than seven. We are going to save the very considerable labor involved in the extra three days of trapping, labor which the record shows is almost entirely wasted.

We hasten to take this belated step now when America is at war and every hour of labor is precious. We are not exactly proud of the fact that for the past 20 years we have been the participants in a more or less senseless procedure which has prevailed in the poultry breeding industry.

Trapnesting and the trapnest record is the first and primary step in all modern poultry breeding programs. Breeders have always felt that they had to trapnest every day in the year, come snow, cyclone, or blizzard. But 365-day trapnesting is a rigorous, difficult and expensive program.

Poultry breeders, generally, have a bent for detail and exactness. Perhaps that is one reason why they have liked to be able to proclaim publicly that hen number C-106 laid exactly 308 eggs in 365 days of consecutive trapnesting. But the main reason why the breeding industry has endured such a heavy, and, as we will see, unnecessary load and expense is probably habit and tradition. The first trapnest records were 365-day records. No one has thought or dared to change the system.

But commercial poultrymen are no longer concerned with the glamour and traditions of the breeding industry. They want good stock and they don't care by what legitimate means the breeder produces it. They approve of any streamlining of breeding technique that reduces the expense of producing such stock.

War time is a good time for breeders to get down to brass tacks, to save and conserve wherever possible. But unnecessary expense and effort has no place in breeding programs either in war or in peace.

We sincerely believe that in simplifying the task of trapnesting and in reducing the heavy amount of labor which it entails, the Dryden Farm has made a contribution to the war effort and to the cause of more and better poultry breeding. We

From the article, "Accuracy in Trapnesting Without Waste."
(Copyright, 1942, Dryden Poultry Bulletin, September 1942)

believe other breeding farms will "follow suit" because the same result can be accomplished and the same essential information obtained with four-day-a-week trapnesting as with seven, and with a saving of 43 per cent in labor. If all the breeding farms in the country went on a four-day trapnesting basis, perhaps enough man hours of labor would be saved in one year to build that extra battleship or extra number of planes it may take to beat the Axis.

### 365-Day Records Unnecessary

The 365 day records are nice and they look imposing in the advertisements, but like the 12-cylinder car, they are not a necessity.

No doubt, too much stress has been placed on individual records of production in the past. The best thing that has happened to the breeding industry in recent years has been the de-emphasis of such records by responsible breeders. But even our government-sponsored National Breeding Plan still tends to glorify individual records at the expense of more important family records. And too many poultrymen still believe that there is an important difference between a 230-egg hen and a 240-egg hen, and that a 259-egg dam produces daughters all laying exactly 259-eggs.

The truth is, of course, that trapnest records are only relative or approximate and seldom exact. There is no certain difference between a 230-egg hen and a 240 or 270-egg hen.

Daughters tend to resemble the entire family tree rather than the particular twig represented by the dam or sire. Pedigree breeders have a genuine and vital interest in family records, only an incidental interest in individual records. It is impossible to be sure of the significance of any individual record, but the family average means something. Thus, a simplified system of record keeping which involves 43 per cent less labor and which has an accuracy of close to 100 per cent can be adopted with confidence and enthusiasm by the poultry industry.

### What a Check Showed

We recently made a careful statistical analysis of 165 exact 365-day trapnest records. The families studied were chosen at random and it can be safely assumed that the margin of error, if any, would be very small if five or ten times as many records has been studied.

For each of the 165 hens, only eggs laid on four consecutive days each week, Tuesday, Wednesday, Thursday, and Friday were counted. Eggs laid on Saturday, Sunday and Monday were not counted. The total of eggs laid by each hen during the year on the four consecutive days each week when eggs were counted was multiplied by seven-fourths or 1.75. This gave the estimated annual production on a four-day-a-week trapnesting basis.

The difference, or error, between actual and estimated production in individuals was remarkably small, only 1.8 per cent. In other words 98.2 per cent accuracy was obtained.

In families, or groups of sisters, the accuracy was almost perfect, 99.88 per cent, higher than the advertised purity of Ivory soap, which has been generally accepted as sufficient by the American public. A saving of 43 per cent in labor, therefore, resulted in an error of neglible proportions, only about one-tenth of 1 per cent. Since our breeding selection is based on family and not individual performance, it seems obviously absurd to continue seven-day-a-week trapping.

But even in individuals the accuracy is so nearly perfect that the estimated records can be trusted. 59.69 per cent of the records on a four-day-a-week basis as compared with the actual 365-day records showed an error or less than five eggs. Exactly 80.78 per cent showed an error of less than ten eggs. Only one of the 165 estimated records showed an error of more than 20 eggs, a rather freak case in which the estimated record was 22 eggs less than the actual.

No financial or personnel emergency has prodded the Dryden Farm to undertake this revolutionary trapnesting procedure. We are simply doing what we believe to be right, sensible, efficient, and in keeping with the times. We know our breeding program will not suffer. On the contrary, it should benefit.

### Real Labor Saving

The 43 per cent labor that we save in trapping can be used to test 43 per cent more pullets. Or to put it another way, more men can now enjoy Sundays at home with their families and have an additional day a week for general work with the birds, work that sometimes can't be done when every day is trapnest day.

Accurate, skilled trapnesters are a rarity, but the Dryden Farm is fortunate in having a number of such men. Strange as it may seem, few men – even University graduates—can be trusted with figures or numbers such as trapnesting involves. The new system will make it easier to assure high accuracy in trapping.

We believe our trapnesting to be efficient and carried out with less expense per bird than on the average breeding farm. One man can trap 1,000 eggs a day (from more than 1,000 hens) and do the feeding, miscellaneous work, and some of the cleaning. The new system will undoubtedly result in improvement in an already rather satisfactory state of efficiency.

Fortunately, only a minor and inexpensive change in our trapnests has been necessary in order that they may be conventional open nests three days a week. A little ingenuity and any battery of modern trapnests on any farm can be very quickly and simply changed into open nests —and vice versa.

We do not pretend to have originated the idea of "short-interval" trapnesting, although the Dryden Farm is the first large breeding farm to put the idea into practice. At the Oregon Experiment Station many years ago Professor James Dryden found that trapnesting a few consecutive days each week gave results substantially as accurate as when the traps were run every day. Some accuracy was even obtained with seasonal trapping.

### Results of Other Studies

Recently investigators Schnetzler of Purdue University and Godfrey of the Bureau of Animal Industry, United States Department of Agriculture, studied a large number of trapnest records with conclusions similar to our own. The facts are plain, clear and encouraging to poultry breeders who have long hoped for relief from the heavy load of daily trapnesting.

Modern, efficient commercial egg farms also might well study the possibilities in short interval trapping. Schnetzler of Purdue found that trapping only two or three days each week was highly accurate as a means of eliminating the unprofitable producers. Feed is high, the need for efficiency is great, and the day may come when all good commercial egg producers will do some trapping. Guesswork is disappearing. Certainly no poultryman need lose money at any time if he knows the production of every hen.

Five-day-a-week trapping is slightly more accurate from the breeder's standpoint than four, but not enough so to warrant the extra expense. Six-day-trapping provides almost perfect accuracy both with individuals and families, but the saving in labor is only one day a week and four-day trapnesting is very close to the accuracy of six.

Perhaps difficulties with four-day-a-week testing may arise that we do not foresee, although we doubt this since we have surveyed the problem carefully and in considerable detail.

But it is worth the try. The times call for streamlining, for efficiency, for saving of effort, of man-power and needless expense.

THE HARD-WORKING, well-fed hen has on her laying clothes, dry and frayed. The oil and fats from her feed have gone into egg yolks. The loafer hen stopped laying eggs and made feathers.

—University of Maryland news release.

# WAR AND THE POULTRY RAISER

### Reactions to Price Ceilings

What the permanent ceiling schedule on eggs and poultry is going to be will be known only when it is released by OPA, but this government agency will have had the benefit of suggestions from producers and egg distributors alike who have been able to observe and feel the effects of the temporary 60-day price freeze.

Immediately after the ceiling was announced, farm prices of poultry declined 2 and 3 cents, sometimes more, giving Washington officials some concern because it put a damper on plans in many areas to raise additional chickens for meat as requested by Secretary Wickard. Packers explained that poultry could not be placed in storage at prices which would not increase enough to take care of storage charges.

The reaction on eggs varied. Mid-October eggs were 93 per cent of parity, having dropped from 102 per cent in mid-September, market men believing that prices, while already high, would have risen another 4 or 5 cents in October had it not been for the freeze. There was the possibility that egg prices would be below 90 per cent of parity in November, for the peak prices last year were reached in November.

Imposition of ceiling prices came at a time when differentials between Chicago and New York City prices were such that the extra freight and handling didn't warrant shipping to New York, and the result has been a diversion of shipments to Chicago. The situation was aggravated further by action of OPA in raising the ceilings on futures at Chicago 1 to 1¼ cents. New York receivers are complaining of lack of volume, and prices on most eggs there have remained at the levels of September 28 to October 2.

The co-operative auctions have virtually ceased to operate as such, and they have had to ration eggs to their buyers. In the San Francisco area, dealers are reported rationing eggs to their customers, but this is the result of heavy Army and Navy buying in that area and increased consumer demand, and not to the effect of price ceilings.

The government was exempt by OPA on October 15 from the ceilings on its egg purchases, for its contracts on dried eggs had called for an increase of 1½ cents a pound every half month to the end of the year.

Representatives of Northeastern egg and poultry cooperatives, meeting in New York City on October 23, recommended that OPA use the proposed revised U. S. Standards for quality as the basis for ceiling standards, that due recognition be given to various state standards in terms of comparable U. S. retail quality standards, and that existing state grades for live and dressed poultry, including turkeys, be similarly recognized.

Many producers would prefer to see one top ceiling price, based upon regions and seasons, and permit prices of grades below seek their own level or maintain a fixed price differential between grades. To be workable and enforceable, the price schedule must necessarily be simple.

Ceiling prices for turkeys were released by the Office of Price Administration on November 7 requiring three grades and three weight groups under which turkeys must be sold. This automatically puts government grading in effect.

It is likely that ceiling prices for eggs and poultry will follow a similar pattern, calling for sales by government grades, and establishing a price schedule for wholesalers with definite markups specified for other handlers and retailers. Where to find qualified inspectors poses a problem.

## Subsidies for Poultry?

There is talk now that subsidy payments may be made to poultry raisers to bring up prices to parity and to take care of increased labor costs. In one state with a strong Triple A setup, it is said the plan for handling subsidy payments has been worked out in detail and can be put into operation without delay, if such a decision is reached.

While subsidies of one type of another to farmers have increased since the early thirties, the practice has been extended greatly in the last few months. In the New York area, milk receivers were ordered to increase the price of Class 1 fluid milk from $3.10 to $3.30 per hundred pounds on September 1. To prevent the increase from being passed on to consumers, the Commodity Credit Corporation technically purchases the milk from the dealers or receivers at $3.30 and sells it back to them for $3.10, the government taking the loss to be absorbed by taxation.

A similar situation exists on wheat flour, but in this instance the subsidy is being paid direct to the farmer. Flour prices were placed at a ceiling equivalent to 76 per cent of parity, but the loan rate to wheat growers is 85 per cent of parity. The average loan on No. 2 grade or better wheat to the farmer is $1.14 per bushel, while the miller can afford to pay only $1.02 per bushel with the 76 per cent parity price on flour. So the Commodity Credit Corporation releases the wheat at which the loan has been made back to the farmer at a price low enough, after all storage costs are paid, that it can be sold to the miller at a price he can afford to pay.

If subsidies are extended to poultry, it means more records to keep and many more on the public payrolls to do the checking and handling of payments, a step that seems inconsistent when there is such a shortage of manpower as exists at present. Far simpler, less wasteful of manpower, and less costly to taxpayers as a whole, would be to lift the ceilings on farm prices to levels that would assure maximum production.

## No Ceiling on Baby Chicks

Hatching egg prices, including the premium, cannot go above their highest levels prevailing from September 28 to October 2, while baby chicks are exempt from the temporary price ceiling, according to an interpretation by the Office of Price Administration.

The International Baby Chick Association believes that when no sale or purchase of hatching eggs was made during the base period, the hatcheryman is to use the prices paid or received by his nearest competitor.

## Poultry, Dairy, and Livestock Farm Workers "Frozen"

When members of the National Poultry Defense Committee contacted Paul V. McNutt, Director of the War Manpower Commission, in Washington on September 14 on the loss of farm help through the draft and competition from defense industries, they were given no indication as to what would be done on the farm labor problem.

Following a meeting in Harrisburg, Pa., on September 24 and 25, the committee specifically asked "that the proper federal agencies be authorized to require essential year around farm workers, including those of hatcheries and processing of plants, to remain in their present positions until such time as the necessary workers be trained and experienced to carry on this work satisfactorily."

The action of the War Manpower Commission on October 27 when it "froze" poultry, dairy, and livestock farm workers, apparently came as a complete surprise to leaders of national farm organizations and labor organizations, some of whom termed the move a step toward the socialization of all workers.

Under the War Manpower Commission's directive of October 27, Selective Service was instructed to ask all local draft boards to reclassify into group 3-B all poultry, dairy, and livestock farm workers who are deferred on the grounds of dependency. Occupational deferment was to be granted to poultry, dairy, and livestock workers or producers who do not have dependencies, but who are necessary men for whom no replacements are available. Final authority on deferment, however, will continue to rest with local draft boards.

The Army and Navy is to refrain from recruiting these workers or accepting them for voluntary enlistment, while defense plants are not to employ skilled poultry, dairy, or livestock farm workers without approval of the United States Employment Service.

The "freeze" applies to poultry, dairy, and livestock workers on "essential" farms which are defined as those which have at least eight dairy cows and a minimum annual production of 30,000 pounds of milk, or the equivalent in livestock or poultry or a combination of animal units which meet this standard. In six months, however, it must be built up to 12 cows or its equivalent. The equivalent of one dairy cow is defined as any one of the following: 74 hens, 250 chickens raised, 500 broilers raised, or 40 turkeys.

In conjunction with this farm labor stabilization move, the U. S. Department of Agriculture is to assist owner-operators and tenants in obtaining more dairy, livestock, and poultry units, and to increase their output if possible. It will also make a wage study and take necessary steps toward wage stabilization. Whether this will mean raising of wage rates for farm workers, now that price ceilings have been established on poultry, eggs and other farm products, remains to be seen, but newspaper reports out of Washington indicate that something along this line may be done.

### Wheat and Corn Loan Rate Continued at 85 Per Cent

"In order to prevent increases in the cost of livestock and of poultry, and to aid in the prosecution of the war," Economic Stabilization Director James F. Byrnes on October 7 instructed the U. S. Department of Agriculture to keep the loan rate on 1942 crops of wheat and corn at 85 per cent of parity, while the loan rate on cotton, rice, tobacco, and peanuts was increased to 90 per cent of parity in accordance with the provisions of the Anti-Inflation Act of October 2.

### Government Buys Poultry Feed

The Agricultural Marketing Administration on September 30 reported the purchase of 700,000 pounds of laying mash and 850,000 pounds of mixed poultry feed.

### Fuel Oil for Brooding

In the 30 states where fuel oil is being rationed, farm machinery and equipment fuel oil rations are issued on a three months basis. It is necessary to state how many gallons will be needed for three months and also give the amount used in the same quarter of the previous year.

Users of oil brooders who are

starting more chicks this year will be

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The 1943 poultry equipment quotas, established by the War Production Board on October 19, are reviewed in the article on page 659 of this issue.

### OPA Allows Used Case Retailers to Raise Price 5 Cents

Retailers of used egg cases located more than 150 miles from any bulk emptier or breaker or used case broker or dealer since October 31 have been permitted to increase their maximum selling price on used cases 5 cents as a result of a ruling issued by the Office of Price Administration on October 26.

The order does not include re-

Base points are New York City, Seattle, Portland, San Francisco, and Los Angeles. The order requires that turkeys be sold on three federal grades and in three size groups. Maximum prices for dressed turkeys sold to the "first wholesaler" in the five basing cities are given in the accompanying table.

To compute ceiling prices for points north, south, and east of Chicago, use the Chicago ceiling price (1 cent below New York) and add freight from Chicago to destination. For points west of Chicago, deduct freight from the nearest point freightwise to destination. In all computations of freight costs, except for shipments of live turkeys, the

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Users of oil brooders who are starting more chicks this year will be required to give the reason for the increased quantity of fuel oil needed. In this case, mention of Secretary Wickard's request for 200 million more chickens should be sufficient.

### Minimum Freight Car Loads Set for Eggs and Poultry

A directive of the Office of Defense Transportation which became effective November 1 provided minimum freight car loadings for eggs from packers or warehouses as follows: Dressed poultry, 28,000 pounds; shell eggs, 600 cases; and frozen poultry and frozen eggs, within 18 inches of the car ceiling.

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The order does not include retailers who buy used cases in areas outside of those in which they operate. Moreover, a retailer located within the 150-mile limit, but who cannot secure cases from the bulk emptiers or breakers, must secure permission from OPA to sell cases at the 5-cent increase in price.

### Ceiling Prices for Turkeys

The Office of Price Administration on November 7 announced permanent wholesale and retail price ceiling of turkeys at five base points and a formula for computing ceiling prices at all wholesale markets. The prices are effective until January 31, 1943, after which they may be raised one-half cent monthly until August 1943.

Base points are New York City, Seattle, Portland, San Francisco, and Los Angeles. The order requires that turkeys be sold on three federal grades and in three size groups. Maximum prices for dressed turkeys sold to the "first wholesaler" in the five basing cities are given in the accompanying table.

To compute ceiling prices for points north, south, and east of Chicago, use the Chicago ceiling price (1 cent below New York) and add freight from Chicago to destination. For points west of Chicago, deduct freight from the nearest point freightwise to destination. In all computations of freight costs, except for shipments of live turkeys, the

**Price Ceilings for Dressed and Eviscerated Turkeys**

| Product | BASING POINT CITIES<br>NEW YORK | | | PACIFIC COAST<br>LOS ANGELES—SAN FRANCISCO<br>SEATTLE—PORTLAND | | |
|---|---|---|---|---|---|---|
| **Dressed Turkeys:** | Grade and Price (cents) | | | Grade and Price (cents) | | |
| **Young Hens or Toms:** | A | B | C | A | B | C |
| Under 16 lbs. per lb: | 40.0 | 38.5 | 36.0 | 39.0 | 37.5 | 35.0 |
| 16-20 lbs. per lb: | 38.5 | 37.0 | 34.5 | 37.5 | 36.0 | 33.5 |
| Over 20 lbs. per lb: | 37.5 | 36.0 | 33.5 | 36.5 | 35.0 | 32.5 |
| **Old Hens or Toms:** | A | B | C | A | B | C |
| Under 16 lbs. per lb: | 38.0 | 36.5 | 34.0 | 37.0 | 35.5 | 33.0 |
| 16-20 lbs. per lb: | 36.5 | 35.0 | 32.5 | 35.5 | 34.0 | 31.5 |
| Over 20 lbs. per lb: | 35.5 | 34.0 | 31.5 | 34.5 | 33.0 | 30.5 |
| **Eviscerated Turkeys:**<br>(Approx. weights before drawn) | | | | | | |
| **Young Hens or Toms:** | A | B | C | A | B | C |
| Under 16 lbs. per lb: | 58.0 | 56.0 | 53.0 | 57.0 | 55.0 | 52.0 |
| 16-20 lbs. per lb: | 56.0 | 54.0 | 51.0 | 55.0 | 53.0 | 50.0 |
| Over 20 lbs. per lb: | 55.0 | 53.0 | 50.0 | 54.0 | 52.0 | 49.0 |
| **Old Hens or Toms:** | A | B | C | A | B | C |
| Under 16 lbs. per lb: | 56.0 | 54.0 | 51.0 | 55.0 | 53.0 | 50.0 |
| 16-20 lbs. per lb: | 54.0 | 52.0 | 49.0 | 53.0 | 51.0 | 48.0 |
| Over 20 lbs. per lb: | 53.0 | 51.0 | 48.0 | 52.0 | 50.0 | 47.0 |

actual freight rate is to be increased by 22 per cent, to provide for tare and costs of icing.

For each corresponding size group, the ceiling price for live young turkeys is 2½ cents lower than Grade A dressed young turkeys. For each corresponding size group of live old turkeys, the ceiling price is 4½ cents lower than that for Grade A dressed young turkeys.

No extra allowance is made for split or cut-up turkeys. The maximum amount received through the sale of all the various cut-up parts of a given turkey shall not exceed the amount received by the sale of the same grade and weight of turkey in its eviscerated form at its maximum price.

The percentage of markup which the "first wholesaler" and also the "secondary wholesaler" may take is specified. Retail ceilings went into effect on November 12.

Sales at wholesale by growers, and sales of breeding turkeys and hatchery stock not sold for food are exempt from price control. OPA said that the ceilings assure the farmer a stable return of 26 cents a pound, a price which is said to be 15 per cent above parity.

How many government graders will have to be employed to enforce the ceilings has not been revealed.

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# 1943 Poultry Equipment Quotas

By J. H. FLOREA

*Reprinted from Hatchery Tribune*

IN a new order (L-170) released on October 19, in Washington, the farm machinery and poultry equipment maunfacturing quota for the year starting November 1, 1942 is announced as 20 per cent of 1940 production. This cuts in half the quota of the past 12 months.

For the current 12 months, ending November 1, the quota was 40 per cent of the 1940 level. The 1943 quota for new repair parts is determined by adding the total dollar volume of sales of repair parts in 1940 and 1941, then taking 130 per cent of one-half of this combined total. This compares with 150 per cent of 1940 in the current period.

It is estimated by WPB officials that the new limitation will save approxmiately 500,000 tons of steel and other critical metals.

## Established Production Quotas

Production quotas for each of more than 250 items of farm equipment have been established and allocated to manufacturers on the basis of their 1940 and 1941 output.

Along with the assignment of production quotas, there is a program which will concentrate the manufacture of most items in the smaller manufacturing plants, in order that the larger manufacturers may devote their facilities almost entirely to the output of war materials.

Equipment makers are classified in three groups according to size:

Class A producers with sales of more than $10,000,000 in 1941.

Class B producers with sales between $750,000 and $10,000,000 in 1941.

Class C producers with sales totaling less than $750,000 in 1941.

How this phase of the program will apply to poultry equipment manufacturers is not known on the basis of information available at this writing.

Heavy farm machinery, including tractors, tractor mounted implements, combines, harness hardware, hand tools, and repair parts are exempt from this concentration program.

## Machinery Quotas Will Vary

Quotas will vary not only for different types of machinery and equipment, but, in most cases, quota percentages are higher for smaller manufacturers. The classic example being used generally now to illustrate this arrangement is this one: The quota for potato planters is 75

Poultry Dairy Publishing Co., Mount Morris, Illinois
(Hatchery Tribune, November 1942)

per cent for class C producers; 16 per cent for class B, and 0 for class A.

The production base will be the particular manufacturer's entire production by weight of the particular item in either 1940 or 1941, whichever was the higher. Certain items are bracketed, thereby permitting producers to distribute the permissible total weight of material among those items as they may desire.

Quotas now being released cover only 75 per cent of the raw materials allocated for the next year's output. It is understood that the remaining 25 per cent will be placed in a pool for later allocations to such manufacturers as appear able to improve on their production quotas. It is thought, too, that much of this material which will be used to control inequities of available raw materials will go for extra materials to class C manufacturers.

Machinery and equipment manufactured before October 31, 1942, in accordance with 1942 quotas may be sold without deduction from the manufacturer's quota.

Restrictions of the order do not apply to any producer whose quota will be less than $10,000 in terms of anticipated net sales in 1943. If a manufacturer made no farm machinery or equipment in 1940 or 1941, he cannot make more than $2,500 worth in the 12 months beginning November 1.

No manufacturer can use any iron or steel (excluding screws, nails, rivets, bolts or wire strapping or small hardware for joining or other similar essential purpose) to make a number of items of farm machinery and equipment, including canopies for electric brooders, laying nests and poultry feeders.

Manufacturers are allowed to substitute non-critical materials, such as glass, concrete, fibre board, plywood and lumber, for critical materials. If the use of the substitute increases the weight of the item, the added weight will not be allowed to reduce the number of units which the manufacturer could otherwise have manufactured under his restriction to the same weight of such items as was manufactured in either 1940 or 1941.

Furthermore, if a manufacturer shows that he can make a substitution of any of these non-critical materials for more critical materials, he may apply by letter to the Director General for Operations, War Production Board, for reconsideration of his quota based on such substitutions.

Distributors (including wholesalers, jobbers, retailers, and others performing similar functions) are not allowed to sell any item of new farm machinery and equipment (except horse shoes, mule shoes and horseshoe nails) which he knows or has reason to know will not be used in the hands of the ultimate consumer for the production or care of crops, livestock, livestock products, or other produce on a farm (or elsewhere in the case of poultry) unless the contract or purchase order bears a preference rating of A-9 or higher. Neither can he sell any new repair parts which he knows will not be incorporated reasonably promptly into farm machinery and equipment by the consumer.

Neither shall a distributor keep in his inventory or in his possession for more than 30 days any used, imperfect or unuseable item of equipment or repair part which cannot be reconditioned. They must be disposed of as scrap.

Distributors are not allowed to order repair parts in excess of estimated requirements.

In the case of emergency repairs, this restriction is lifted provided the distributor files a "Certificate for Emergency Order" with his order.

To make poultry equipment available on an equitable basis, rationing will continue.

An amendment to order L-26-D, freezing all farm machinery in the hands of dealers, became effective October 1, as follows: "No certificate or form to purchase poultry equipment or parts priced at less than $25 per unit is necessary after this date."

### Rationing Forms Obtainable

Farm machinery and poultry equipment are being rationed through the USDA. Proper forms can be obtained at the County War Boards office or Agricultural Conservation Committee office. It is entitled "Certification of Need for New Farm Equipment."

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## *Insurance for Turkey Growers*

By the time the 1943 season is under way, the National Turkey Federation expects to have established a program for insuring turkeys against losses caused by fire, weather, and even predatory animals. The tentative plan, as outlined in Turkey World for October 1942, contains the following features:

1. The insurance will be available only to members of the National Turkey Federation. However, any grower may become eligible for the insurance by becoming a member of the Federation.
2. Those wishing to insure birds will pay 2 cents per bird to be insured into a guarantee fund. This amount will be paid but once (the first year) and will not be increased unless the grower increases the number of birds raised in years following the first year. (In this case he would pay 2 cents for each additional bird to be insured.) This will set up a permanent fund to carry on

the work of the insurance plan and pay losses as they occur during the year.

3. Each year, including the first year, all who wish to insure turkeys will advance 1 cent per bird for the number of birds to be insured. This is an advance to provide operating funds for the current year. This 1 cent will apply toward reduction of the assessment at the end of the year. (see No. 4)

4. An assessment will be made on all growers each year (including the first year) about December 1. The amount will cover the cost of operation and losses for the year.

5. Because of a plan of reinsurance in a large commercial insurance company, the grower will have the guarantee that his assessment never will be more than 5 cents per bird.

It is anticipated that after the plan is once in operation the cost of insurance will in normal years range between 2 and 2½ cents per bird. However, if losses are heavier than normal, the cost may run higher. In no case, however, will the grower be required to pay a loss assessment at the end of the year of more than 5 cents per turkey insured that year.

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## *Tight vs. Loose Feathering*

The tight-feathered pullet of any laying breed will always lay better than the loose-feathered one. The former handles sleek and silky, is firm and solid in body with full abdomen; the loose-feathered pullet feels light in comparison, has a partly or an entirely empty abdomen even when in lay, will look large, but can be squeezed in the hand to almost nothing. Loose or excessive feather shows up clearly when the pullets are moving about and are viewed from the rear. The long cushion feathers give a rather full appearance to the back near the tail; the thigh feathers will protrude outwards, and beyond the line of the abdominal fluff. The tight-feathered pullet has a full and rounded front, cushion feathers lying down instead of upright, and there is a distinct line of the thigh fluff an inch or so in front of the outline of the abdominal fluff.

—Poultry (Australia), Aug. 22, 1942.

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NEW YORK CITY observed its first "meatless" Tuesday on October 22 at the suggestion of Mayor LaGuardia. The Mayor's Tuesday dinner consisted of chicken left over from the Sunday dinner.

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# Poultry Manure in Profitable Position

**By G. T. KLEIN**
Massachusetts State College

*Reprinted from the American Poultry Journal*

THERE is real value in poultry manure as a fertilizer for the garden, farm, and lawn, and present conditions offer poultrymen an opportunity to cash in on this value.

As nitrogen fertilizers take their place on the "frozen" list, the chance, at last, has come to demonstrate the value of poultry manure. For the duration, at least, it will replace some of the commercial nitrogen now needed for gun powder.

Poultry manure has been selling for just what a poultryman could get for it. If he operated a general farm, the best possible use was on the fields. If it was offered for sale, the price depended on how badly the buyer needed it and how much he appreciated its worth. Sometimes it amounted to a contract with a vegetable grower or a dairyman to come to the poultry plant, clean the houses, and furnish new litter for the floor. That is a good proposition for both parties. The average selling price in Plymouth Co., Mass., during the spring of 1942 was \$3.20 a cord. Prices have ranged from \$3 to \$5 a cord for the past 10 years.

A cord of manure is equivalent to about 3 tons or 100 bushels, according to estimates of R. W. Donaldson, extension agronomist, Mass. State College. The moisture content of fresh manure will run about 75 per cent. It may run as high as 85 per cent. R. I. Red hens weighing 5.5 pounds each will produce about 47 to 50 pounds a year.

### Composition of Poultry Manure

On the basis of a ton, it contains about 20 pounds of nitrogen, 16 pounds of phosphorus ($P_2O_5$), and 8 pounds of potash ($K_2O$). Stable manure, by comparison, contains 10 pounds nitrogen, 5 pounds phosphorus and 10 pounds of potash. The average plant food content of poultry manure is 1 per cent nitrogen, .8 per cent phosphorus and .4 per cent potash.

Litter containing a considerable proportion of droppings will weigh about 48 pounds to the bushel and straight droppings 60 to 70 pounds per bushel. The litter manure weighs about 2 tons to the cord, and is considered to be worth about two-thirds as much as the straight droppings.

The plan of using "built-up" litter is now a very common one. Litter is built up by adding 1 inch of dry

From the article, "An Opportunity for Poultrymen."
(American Poultry Journal, November 1942)

sand to the cleaned floor, if it is available, and 2 inches of straw, peat, sugar cane, or shavings. The new pullets are housed on this in late August or September. It is added to from time to time, and by December 1, it should be no less than 6 inches deep. It is stirred frequently, but is not changed during the entire year. It is nearly as valuable as straight droppings after a year's use, and the litter that was used is not objectionable except for the lawn. The floor manure will sell somewhat better if shavings are not used for litter, for there is some prejudice against them. The droppings pits, now so popular in the East, are cleaned about three or four times a year.

### What to Add to Balance

Poultry manure is lacking in both phosphorus and potash, but these can be supplied, for they are not rationed, and it can be made a well balanced fertilizer. It is a fairly common practice to throw some acid phosphate in the pits about once a week. This holds the ammonia in the manure and makes it a better balanced fertilizer. When applied to the land, some potash can be added. The superphosphate, which is often added to either the roosts or the floor manure, is used at the rate of about 30 pounds to 100 hens a month. The use of a 0-14-14 fertilizer to balance it has been suggested.

Uses of poultry manure have been under careful investigation at Massachusetts State College and here are opinions of some of the investigators.

**Lawns and golf courses**—Poultry manure has always been one of the best fertilizers that one could get. It has the objectionable feature of burning, carrying undesirable litter, weed seed, and an objectionable odor. Well chopped straw is the least objectionable litter for the lawn as it blows away during the winter. Straight droppings are excellent. It can be put on late in the fall and as thick as the eye and nose will permit. Poultrymen can make it more valuable for this purpose by using desirable litters. Drying and processing make it excellent for the lawn and golf course, but it has the tendency to make it too expensive.

**Pastures and crops** — Poultry manure is entirely satisfactory as a source of fertility. It is strongly recommended for grasses, but should be supplemented with phosphorus for clovers. It contains a variety of less common minerals which may be very valuable. The plant food is not so leachable as inorganic fertilizers. It is excellent for corn and can be used in almost unlimited quantities.

**Fruits and berries**—Poultry manure is useful on any kind of fruits in moderation. It should be applied in the spring or very late fall. We look on it as a valuable source of nitrogen. If the hens' ration contains magnesium, it will be especially valuable for fruit. It is excellent for strawberries when applied the year before the crop is set. For raspberries, it should be applied in the early spring.

**Vegetables**—It is absolutely satisfactory and does as good a job as any other manure. Manure with litter can be used in almost any quantity up to 16 or 20 tons to the acre. Straight droppings should be cut to 5 or 6 tons to the acre. It must be used more sparingly with peppers, tomatoes, potatoes, and other root and leaf crops.

**Flowers**—Flower growers in Massachusetts rate it very highly. It is spaded under in the spring at a reasonable heavy application rate and is used for both annuals and perennials.

It is very desirable to have some convenient way of handling manure at the time of house cleaning. The litter carrier is the easiest, and since pits have to be cleaned only two to four times a year, the carrier can be used to excellent advantage in houses of considerable length. At the end of the house can be a concrete platform on which the manure is dumped from the carrier. This might be enclosed and covered with a roof, but it is hardly necessary if the manure is hauled to the fields soon after cleaning.

Where the litter carrier is not a part of the equipment, the removal must be done through the open window or door in the front of the house. Modern houses are designed for this, and the cleaning program can be timed with the convenience of the hauling of the manure to the fields or the convenience of the one buying it. In many cases, it is thrown directly into manure spreaders or trucks and hauled to the fields.

The summer laying houses have doors 8 feet wide, and the spreader is backed into the house for loading.

### Some Drying Done

Attempts to dry and package poultry manure by machine have not been very successful up to the present, but it has possibilities. Some of the drying machines that have been marketed have been too light in construction and have not lasted very long. There is considerable expense in collecting manure from farms for a cooperative enterprise, which adds to the cost of the product. It is not impossible that there may be some successful attempts along this line after the war, but the product will probably have to compete with fairly cheap nitrogen fertilizers.

There has been some sale of the cleanings of the brooder house and laying house when peat or shredded cane are used for litter, which is commonly put up in 50-pound bags and sold to the city flower grower after the product is air dried.

# "Cut-up" Chicken Helps Consumption

By ANDREW CHRISTIE

President, Poultry and Egg National Board

*Press Release*

THE man who first conceived the idea of selling chicken in parts rendered a real service to the poultry industry. In many retail stores it is now possible to buy legs, wings, breasts, or any other parts of chicken in any quantity desired. In the larger cities, there are stores which specialize in cut-up poultry.

One such store sent out a postcard entitling the housewife to one piece of chicken free when presented at the store. The presentation of the card gave the store manager an opportunity to explain the new plan and its advantages. Usually, the woman purchased several pieces in addition to the free piece given her. And because the chicken was strictly fresh and of good quality, she eventually became a regular customer.

These are busy times, and most housewives are carrying extra work. They are giving freely of their time to such volunteer services as the Red Cross, British War Relief, and Women's Auxiliary Motor Corps. In many cities, they are renting spare rooms to defense workers. Thousands upon thousands are engaged directly in the war industries.

Faced with all these extra demands upon their time, women are compelled to simplify their cooking. Wherever possible, they choose meats which can be quickly prepared for serving. Cut-up poultry is exactly the kind of meat these busy women are looking for. It can be cooked and served in a few minutes, yet is delicious and satisfying.

Many people have distinct preferences as to the part of the chicken they like best. Cut-up chicken permits the housewife to shop according to the preferences of her own family—a drumstick for Dad, breastmeat for Mary, a thick, juicy thigh for little Willie, and a pair of wings for herself. When the meal is finished, the homemaker has no "left-over" problem. She can serve it an entirely different way the next day, thus avoiding the risk of tiring her family of chicken.

I firmly believe that the American people will buy and consume a lot more poultry meat of every kind if it is made available in cut-up form in every retail store which sells meat.

What is needed is a concerted effort on the part of the entire industry, including producers, packers, wholesalers, and retailers, to put this

plan in operation. It is the business of those interested in the poultry industry to get behind this sound merchandising idea and see that the cut-up chicken plan gets the attention which it merits. Such support will result in increased business for all concerned at a time when the sale of most meats is limited by rationing.

The poultry industry has an opportunity at this time to find out how much chicken the American public can absorb. Let's modernize the merchandising of market poultry and do it now!

## *Turkey—A Food for Victory*

While a country, such as ours with varied agricultural resources, needs to utilize all the classes of animals for human food production, so that none of the possibilities will be lost, it is advisable to especially encourage the use of those classes of animals that can make the greatest contribution to the food supply, in proportion to value and weight of a unit of breeding stock that must be retained for reproduction, especially so is this true if the offspring is particularly efficient in converting animal feeds into human food.

In the case of turkeys it is estimated that each 100 pounds live weight of breeding stock, used to provide eggs for hatching during the normal breeding season, should make it possible during a 12-month production period to provide at least 2,500 pounds of live weight turkeys or 1,875 pounds of table dressed turkey meat. According to this method of calculation the turkey industry stands at the head of the list as a means of rapid and economical production of human food of animal origin in our "Food-For-Victory" program.

It would seem, therefore, that the industry, which can make it possible to create the greatest tonnage of animal products for human food per 100 pounds breeding stock out of raw materials, should play a more important part in our program for food production at this time than it has in the past. At the present time turkey meat constitutes only about 2 per cent of the total meat supply of the nation. A greater production of turkey meat would improve the national economy during our war emergency.

While quantity production at the present time is especially needed, economy of production must not be lost sight of. The ability of certain animals to utilize feed more economically than others in the production of meat products is well known, and is worthy of emphasis at this time. For example, according to the author's calculation, it requires approximately 4½ pounds of a balanced ration of mixed feeds to produce 1 pound of live weight of turkey to the finished state.

The turkey not only stands at the head of the list of animals in possible yearly weight of finished offspring produced per 100 pounds of breeding stock, but it is exceeded only by the young chicken and possibly the young pig in the pounds of human food it can produce from a hundred pounds of feed consumed. This again qualifies the turkey industry as an outstanding "Food-For-Victory" effort.

—L. E. Cline, Norbest Turkey News, October 1942.

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## War Calls to the Barnyard Hen

War asks another old timer to come to the rescue — the barnyard hen.

The barnyard hen has not been in high grace, socially.

She was a sort of female Robin Hood, who lived by her wits, raided for food, snatched Junior's jam sandwich, feuded with the dog, hobnobbed with the hogs and cows, would wander in the house if somebody left the screen open, and was withal a nuisance and a beloved vagabond.

She was often called a "dung hill," and her eggs were referred to as a "scab" product. Her owner did not belong to an organization, so her eggs were purchased by a sharp buyer who got them cheap by degrading them, then upgraded them before he dumped them into the market.

But in war we need the barnyard hen and her product. The socially correct hen of the commercial poultry farm now is without her butler—he has gone to war, or to the shipyard. Some commercial poultry farms are already closed, many are cut down in production, the commercial hatcheries which supplied chicks for replacements are going through the wringer of the emergency and will have less help to maintain their output.

So we call upon the barnyard hen, and begin to re-discover her advantages. For one thing she is a diligent worker. She does not go for the six-hour day of Harry Bridges' longshoremen, or the seven-hour day of John L. Lewis' coal miners. Hers is a seven-day week, sunup to sundown, no time and a half, no double time, a vacation once a year while she is fitted for a new dress, but otherwise very little loafing.

If she does much loafing we can always cut off her head and have a pot of fricassee. Harry Bridges looks stringy, and John L. Lewis greasy,

but a loafing hen is valuable as meat.

A hen does not get the headlines, but she can launch an egg oftener than Kaiser can launch a ship, and she does not require so much help to do it. Her egg will not have the yolk color of a drug store blonde, but it is honest stuff, and we are now beginning to re-discover that its darker color is the handmaiden of vitamin A.

We have often traduced her product as a "dung hill egg," but science finds that no matter what the surroundings, the hen lays a clean egg product, free of bacteria, and dirt. If the egg acquires bacteria, they enter through the shell of the finished product as a part of the carelessness or dirtiness of man. The hen's egg is a model job.

So we toast the barnyard hen. We call upon her to help win the war. Many soldiers report that they get more eggs to eat in the Army than they have ever had before. That is fine. We must keep 'em rolling. Eggs are one of Nature's great protective foods, ranking next to milk which is the greatest.

So every farm which can, should milk as many cows as the family can handle, and there should be a farm flock of hens, producing more protein food than can be produced per acre by any other creature.

These barnyard hens ought to be fed a balanced ration, out of our generous supplies of feeds, but should also do much of the harvesting of waste around the farm, especially fresh greens. And don't be stingy with fresh air. Hens can use a lot of that.

The bugles of war are sounding—"I can't get 'em up, I can't get 'em up," but this does not apply to the hen. She is already up and at work, if you give her a chance.

—Pacific Rural Press, Oct. 17, 1942.

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## Market Maturity in Turkeys

Market maturity can be determined by parting the feathers on the side of the breast about half-way between the point of the breastbone and the back. The skin between the feather tracts should be light in color, white or yellowish. A dark red appearance of the skin in this area indicates that there is little or no fat under the skin and the turkey is not ready for market. The degree of finish can be determined with a little practice by rolling the skin in this area between the thumb and forefinger. A very thick skin with a light color indicates that the turkey is of top market quality.

—J. C. Taylor in New Jersey Poultry News Notes, Nov. 1, 1942.

# POULTRY RESEARCH

## Effect of Rearing in Isolation on Fowl Leucosis Incidence

The longer that chicks can be reared in isolation away from a flock known to have a high incidence of fowl leucosis, the less likely are they to acquire the disease later, according to the work of C. W. Barber, New York State Veterinary College, reported in The Cornell Veterinarian (Vol. 32, No. 2).

On one project, chicks were hatched from eggs laid by the station flock, but part of the chicks were raised in a new brooder house with new equipment on a farm where no chickens had been kept for many years. At 4½ months of age, the pullets were brought in to be housed with those raised at the station. After 265 days of observation, 23 per cent of the birds raised at the station showed evidence of fowl leucosis, while none of those raised on the outside farm showed any fowl leucosis lesions. The latter group was still free of the disease at 500 days.

On a later project to determine the effect of rearing under different periods of isolation, birds isolated for periods of 4, 10, 19, and 22 weeks developed the fowl leucosis complex to the extent of 46, 32, 13, and 10 per cent, respectively, during a 500-day period. Those birds reared on the station poultry plant, however, showed a fowl leucosis incidence of 64 per cent.

## Wattle Disease

Wattle disease has been observed in a South African flock for seven successive generations. The opinion of American investigators that wattle disease is often a localized form of fowl cholera of low virulence was confirmed by bacteriological procedures. Males were much more subject to the disease, because their temperament is conducive to injuries of their larger wattles and it is through these injuries that the disease organisms gain admission.

The continued occurrence of the disease, year after year, indicates the presence of disease carriers. It was decided to dub all males. No new cases have occurred since (Jl. South African Vet. Med. Ass'n, 1942, Vol. 13, No. 1).

—Carl H. Schroeder, Everybodys Poultry Magazine, November 1942.

## Pigeon Pox Vaccine Does Not Cause Slump in Production

Because the reaction following vaccination for fowl pox has often caused a greater slump in egg production than that produced by the disease, vaccination of chickens about to start laying or those already laying had not been generally recommended.

To determine what value pigeon pox vaccine might have in controlling outbreaks and at the same time prevent a slump in egg production, C. M. Hamilton of the Western Washington Experiment Station inoculated several flocks with pigeon pox vaccine. His results are given in the annual report of the Western Washington Experiment Station for the year ending March 31, 1941.

A flock of 411 hens showed a 9.2 per cent pox infection at the time the birds were vaccinated with pigeon pox vaccine. Evidence of pox increase until 40 per cent were affected two-weeks following vaccination, after which time there was a rapid decrease in the number of chicks affected. One week before vaccination, the egg production was 68 per cent. For the five weeks following vaccination, the egg production was 69, 67, 72, 66, and 74 per cent, respectively.

To get maximum protection from the use of pigeon pox vaccine on pullet flocks coming into production or in flocks already in production where fowl pox has made its appearance, Hamilton makes the following recommendations.

1. A potent vaccine must be used.
2. The vaccine must be applied by the feather follicle method.
3. Fifteen to 20 feathers from a well-feathered part of the leg must be pulled in order to have an adequate number of large feather follicles.
4. The vaccine must be applied so it will enter the feather follicles.

## Increased Salt in Ration Fails to Reduce Cannibalism

Increasing the salt content of the ration above 1 per cent did not eliminate cannibalism, but tended to aggravate the vice, according to the work of Gordon E. Bearse, Cecil F. McClary, and V. L. Miller given in the annual report of the Western Washington Experiment Station for the year ending March 31, 1941.

Duplicate groups of 60 two-week old White Leghorn pullet chicks were placed on diets containing 1, 3, and 5 per cent common salt, and 8 per cent epsom salt. The 8 per cent epsom salts was fed because it resulted in approximately the same water consumption as 3 per cent common salt, and it was thought that possibly increased water drinking might be the means of controlling cannibalism.

At 30 weeks of age, the percentage of birds feather picked was as follows: 1 per cent, salt, 3.8 per cent; 3 per cent salt, 49.1 per cent; 5 per cent salt, 15.7 per cent; 8 per cent epsom salt, 10 per cent.

There was no mortality from cannibalism in the chicks on 1 per cent salt; 6.7 per cent cannibalism mortality in those on 3 per cent salt; 5.9 per cent cannibalism mortality on the 5 per cent salt ration; and 7.5 per cent cannibalism mortality on the 8 per cent epsom salt ration.

### Perosis in Turkey Poults

Perosis (hock enlargement, slipped tendon, and twisted metatarsus) in turkey poults can be prevented in severe form by having two-tenths of 1 per cent choline or 15 per cent liver meal in the ration, according to R. J. Evans, E. I. Robertson, M. Rhian, and L. A. Wilhelm of the Washington Agricultural Experiment Station in Poultry Science (Vol. 21 No. 5).

Fifteen per cent soybean oil meal or 13 per cent herring fish meal gave some protection against perosis, but 15 per cent pea meal gave none.

Both increasing and decreasing the protein content of the ration from a 22 per cent level resulted in increased perosis, but this is believed to have been due to a manganese deficiency.

### Eliminating Slow Feathering Factor in White Leghorns

Because slow feathering in White Leghorns, when it is hereditary, is a non-sex linked recessive factor, it is difficult to eliminate it from a breeding flock, according to Cecil F. McClary and Gordon E. Bearse in the annual report of the Western Washington Experiment Station for the year ending March 31, 1941.

For example, the slow feathering factor can be carried along in the flock and show up only when a male carrying it happens to be used in a breeding pen where there is a female carrying it. Of her chicks, about 25 per cent will be slow feathering, 50 per cent will be normal but will carry the factor, and they will be capable of producing slow feathering chicks when mated to another individual carrying the factor. The remaining 25 per cent will be free of the factor. In such a situation, it is advisable to discard the entire family for breeding purposes.

The Washington investigators suggest the following two plans as a procedure to use in eliminating the slow feathering factor from a breeding flock:

Plan No. 1: Save some of the slow feathering chicks, both male and female, and use them in a test mating with the breeding birds either before or after the regular hatching season. Hatch about eight chicks from each hen and discard as breeders all individuals and their offspring, producing slow feathering chicks. A male may be tested during the hatching season by placing a slow feathering hen in the pen and hatching eight or ten chicks from her. This same hen may be used in several pens if she is removed from one pen for two weeks or more before eggs are saved for testing in the next pen. This procedure will involve considerable extra work, but will eliminate the factor at once.

Plan No. 2: Discard as breeders all families that produce slow feathering chicks including the chicks from all males producing it. This method may require some time and may be too expensive to be practical. However, the mere elimination of chicks that are slow feathering does not guarantee that the factor will ever be eliminated or even reduced.

### Acorns for Poultry Feed

Crushed acorn kernels can be introduced gradually into laying rations up to a maximum level of 10 per cent with no harmful affects to health and production, according to Harold Temperton writing in Modern Poultry Keeping (London) for September 16, 1942. The scarcity of feedstuffs has prompted English poultry raisers to utilize anything which may have feeding value.

The production of off-colored yolks, reported by German experimenters in 1915, does not appear to be due to the quantity of acorns that are fed, according to Temperton, but unripe or germinating acorns are more likely to affect yolk color than those which are properly harvested and dried.

"The acorns should be spread on the floor of a dry building in a thin layer and turned frequently until the husks are brown and brittle, when they can be bagged without danger of heating or mold formation," Temperton explains.

"To prepare for feeding, they can be either crushed to expose the contents of the kernel or, preferably, ground to a meal and sifted to remove the husk."

### Vitamin A Requirements of Layers

The vitamin A supply of the laying ration may be furnished entirely by 5 per cent dehydrated alfalfa in the mash, if the alfalfa contains 15 milligrams or more of carotene per 100 grams when the feed is mixed, if the mash is fed within four weeks or less after mixing, and if not over 50 per cent grain is fed, was the conclusion of Cecil F. McClary, V. L. Miller, and Gordon E. Bearse in the annual report of the Western Washington Experiment Station for the year ending March 31, 1941.

The tests were run on 420 disease-free, range-reared pullets which were fed a ration low in vitamin A for 52 days, then dividing into six pens the pullets which were not culled, putting duplicate pens on three different levels of vitamin A in the ration.

It appears that approximately 500 U.S.P. units of vitamin A from carotene per 100 grams of feed are adequate for high egg production and good health of the birds. The rate of lay in all pens increased rapidly after the birds were taken off the vitamin A depleted rations, but the rate of increase was greater in the pens receiving the highest level of vitamin A.

The loss of vitamin A from the mash during the week of feeding averaged 10 per cent, the loss being slightly greater in warmer weeks and less during cold weather. The procedure was to analyze the vitamin A ingredients, alfalfa and carotene oil, for carotene before each mix, and then make another analysis of the ration after it had been mixed and remained in the pen for a week.

### Soybean Oil Meal for Broilers

A report (Bul. 441) from the Missouri Agricultural Experiment Station on the use of soybean oil meal is particularly timely in view of the shortage of certain protein supplements and the difficulty and cost of obtaining others. Feed costs alone account for more than half the cost of producing poultry meat, and protein supplements are among the most costly ingredients in the poultry ration.

Rations containing from 2½ to 25 per cent of soybean oil meal were used in seven different trials with broilers raised to ten weeks of age.

When fed in combination with 2 per cent or more of animal protein supplement, rations containing as much as 25 per cent of soybean oil meal produced gains equal to the average of the control groups.

Under the conditions of these experiments, meat scrap proved superior to dried milk as the sole source of animal protein used with soybean oil meal. The results as a whole confirm the oft-made recommendation that a combination of proteins from several sources is preferable to the use of proteins from only one or two sources.

A comparison of rations containing from 17 to 22 per cent of protein indicated that male chicks utilize the additional protein to ten weeks of age to better advantage than do female chicks fed the same rations.

—L. E. Card, Poultry Tribune, November 1942.

### Yellow Milo and Hegari Can Substitute for White Corn

Yellow milo and hegari, grain sorghums which give high grain yields under irrigation in the southwestern United States, are equal to white corn as a source of energy in a well balanced ration for laying hens, reports John C. Hammond, U. S. Department of Agriculture, in Poultry Science (Vol. 21 No. 5).

Substitution of these two grains for corn may be made, provided the ration already is adequate for high egg production and high hatchability.

### Tung Oil Meal Unpalatable

The feeding of solvent-extracted tung oil meal to growing chicks at levels from 5 to 20 per cent of the ration indicate that it is unpalatable, according to L. L. Rusoff and N. R. Mehrhof, Florida Agricultural Experiment Station, and R. S. McKinney, U. S. Department of Agriculture, in results reported in Poultry Science (Vol. 21 No. 5).

No definite indications of toxicity were observed, but the investigators believe that this may have been due to the relatively small proportion of solvent-extracted tung oil meal present in the ration. Other investigators have shown non-extracted tung oil meal was definitely toxic to chicks.

One thing believed to have caused the tung meal in this study to be unpalatable was the fact that it had undergone fermentation, for it had been placed in burlap sacks when very moist and stored for a considerable length of time.

### Direction of Comb Lop Not Related to Yield

Whether the comb of a White Leghorn pullet lops to the right or to the left bears no relation to age and body weight at sexual maturity, or to the number of eggs laid to 500 days of age, according to C. D. Mueller and F. B. Hutt, Cornell University, in Poultry Science (Vol. 21 No. 5).

Of 6,625 Single Comb White Leghorn pullets that had lopped combs when classified in December, 73 per cent had combs lopping to the right. This proportion was fairly consistent in four different strains over four years.

The direction of the comb lop in adult birds was found to be independent of the direction in which the combs of newly hatched chicks were bent.

The lopping apparently is not inherited, for hens producing an excessive of left-lopping daughters in one year did not do so in succeeding years.

Of the birds classified, 5.3 per cent had combs that did not lop. They tended to be inferior to their full sisters of the same age and reared under the same conditions, but which had lopped combs.

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## *Tagging Egg Cases*

Shipping tags should always be placed on the ends of egg cases, but the Derry (N.H.) egg auction cautions its members against putting them right up under the cleats. Reason: hand trucks which pick up the cases under the cleats may knock off the tags if they are tacked high.

—Everybodys Poultry Magazine, October 1942.

# Diary of a Poultryman

### By PERCY S. WHITE

Wayne County, Ohio

*Condensed from Everybodys Poultry Magazine*

Nov. 1—Floods and high waters of bills — electric, hardware, lumber, feed, telephone, and many others too numerous to mention. Time doesn't mean very much to me, for the old nose is always on the grindstone, but I could tell at a casual glance at the mail box that this was the first of the month. After I check out some where-with-all, there won't be enough residue left in the bank to make a down payment on nothing, nohow.

Nov. 3—Eight pullets are still at large on the range. At this time of the year, there are usually several hundred. If I recall correctly, there were at least 600 out last year. It doesn't seem possible to me that we have all the pullets housed, as it usually takes so much longer.

Ed Amiet, R.O.P. inspector, has inspected, approved, bloodtested and banded the breeding cockerels. I had breeding cockerels this year to a fare-ye-well — big, husky fellows. Walter Buss took the surplus to mate with other flocks. Of course, there were a few that were not approved for various technicalities and they will go on Thursday's sale.

Nov. 6—Cleaning day, by necessity, not because of a regular schedule. We haven't started a regular schedule yet, as some of the pullet houses haven't had enough droppings on the boards to need cleaning. But from now on, we will settle down to an orderly method. This winter we will be on a twice-a-week program, as the boards clean easier when not so heavily laden.

I had to take the two coops of cockerels to the auction in a heavy rain. I have smelled wet chicken feathers before, but the air in the live poultry sales room was the richest I have ever tasted. All the producers were selling wet chickens. It was a good day for ducks, there being six coops of them. Their feathers seemed dry.

Nov. 8—I am not going to take any chances on this Indian Summer business, but am preparing for a real crackdown of cold weather. All the boards were cleaned yesterday or today and the droppings spread. There are 10 bales of hay within arm's reach of the cows and 585 more bales stored on the ranch. The window sash have been put back in place in the block house. The curtains in the west house will be dropped Monday, but the east and north houses are so well protected by pine trees that hardly any wind hits them.

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(Everybodys Poultry Magazine, November 1942)

Nov. 10—I have been cold all day and from the looks of the laying stock they have been cold, too. The weather man says continued cold for the entire week. I wonder what has become of that Indian Summer? The west house is not as well protected by the pines as the other houses, so the curtains were lowered in there today. I am beginning to close up the houses for the winter. It certainly makes a difference to close the houses, to keep the wind out.

Nov. 11—It is the anniversary of events about which I do not like to think, so I just pitched in and worked that much harder.

Our nests needed repair badly and this was a good day for an inside job. I can't understand why the birds seem to take special delight in tearing them all to pieces. There must be some kind of sport in such activities, or they wouldn't do it. The nests are getting the sawdust treatment. This treatment consists of working sawdust into the regular nesting material, timothy hay or excelsior, as the case may be. It is my theory that this will make a more compact mass and may have a tendency to discourage scratching. It depresses me when I go into a house and see all the nesting material on the floor.

Nov. 12 — The birds in the north house have all the appearances of a touch of bronchitis. They are beginning to shake their heads, trying to clear their throats, emitting, to my way of thinking, ghastly sounds. Last year, this form of colds, bronchitis, or what have you, swept through the flocks, but it lasted only about three days. I hope this is the three-day form instead of the old seven-year-itch type. Last year I didn't lose a bird from the malady, but I have known folks to wheel dead stock out of the houses in wheelbarrows.

Nov. 13—It's here; Indian Summer is officially here. For the past few days Squaw Winter has been on the rampage, but now, "happy days are here again." Sunshine, warmth, little wind, and a haziness in the sky, preceded by cold, sharp winds, snow, sleet or rain at this time of the year is Indian Summer. It might last from a few hours to a couple of weeks. I sure hope it lasts.

Nov. 15—It is the three-day type instead of the seven-year-itch type of bronchitis that has hit the north house. Production has fallen about 100 eggs a day, but the birds are not dying. They are even starting to eat again. I am lucky, or, rather, I am most fortunate.

Nov. 17 – The bronchitis has spread to the block house. Not bad, for the birds are actually gaining in production, but for how long? Yes, for how long must I wait? Will it get them now or will it hesitate?

Nov. 18 – Indian Summer is still with us. The thermometer was up to 72 at dinner time, that is at noon. Between the regular routine work, we are cleaning the road ditches. And the Old Man had his overall jacket and sweater off, so it must have been warm. Whenever I start taking off clothes, it really is getting hot. Grass and weeds in the bottom of side ditches retard the flow of water, causing poor road drainage. I try to clean the ditches every spring and fall, which is good insurance for better under-footing. The bronchitis in the north house is clearing up rapidly.

Nov. 20—They say it is Thanksgiving Day, but I don't know. I do know that it is the end of Indian summer. It has been from a drizzle to a rain and then back to rain again all day. Donnie and I did the work, holiday hours, and we did have a half way Thanksgiving dinner. Next Thursday we are going to have a real dinner. Donnie and Janie will be at school then, but we will go collegiate and eat dinner when we should be eating supper. I just don't get out of the sticks long enough to take on city airs.

Nov. 21—Interior egg quality was down a wee bit as I candled and packed the eggs tonight. The birds were late in their laying all day. There were half as many eggs at the 8 o'clock gathering as usual and twice as many at the 2 o'clock round. In other words, the eggs were retained in the body cavity longer than usual, which evidently counts for the lowered quality.

Nov. 22—Donnie is at home today, Saturday, but we didn't get so awful much done. There is no doubt about it, Indian summer is officially past. This is probably the reason why we didn't get very much accomplished; the little chicken boys can't stand cold weather.

Taken as a whole, the week's work was rather satisfactory. The three-day bronchitis in the north house has cleared up completely and production is within 50 eggs a day of the high peak before it started. Now if no complications set in as a result of it, I should be sitting Jake. This three-day stuff is a stem winder while it lasts, even if there was no mortality.

Nov. 24—Oh! dear me suz, the birds in the west house are showing symptoms of bronchitis. It looks better in print to say, "Oh! dear me suz," than to write what I think. Perhaps, on a few occasions, I have burnt the germs out of the atmosphere with a few choice morsels of selected words. A few "U. S. Extra Special" words relieve the tension on the nerves leading to one's brain. So far, the production hasn't dropped in the west house. There were more eggs today than any day yet. But if the epizootic has spread, it is only a question of time; only time will tell.

Nov. 26 – Harold and Dale Unger, our local truckers, went to the cider press for a load of apple pomace for the cows. They had 7 tons on the truck and the rear wheels went down in the mud. They called the wrecker, but it couldn't pull them out. The load was thrown off and the wrecker re-called. Pulled to high ground, they reloaded the truck. Such unproductive labor is known as having a bad day.

Nov. 27 – I don't know exactly what did happen today for I have been in a sort of daze. The sun, the moon, and the course of human events might vary, but today was Thanksgiving as far as this ranch is concerned. Kid White had the regular Thanksgiving Day dinner at the time we usually eat supper. And this didn't seem quite right, but in a cockeyed world it wasn't such a bad deal at that.

Nov. 28 – The tile house was originally built for a manure house, but in recent years it has been used for every other purpose but the original. Today it is a silo for apple pomace—silage. The boys had good luck, perhaps I should say success, in hauling. They brought in a load this morning and one this afternoon. The house is well nigh full and there is a mountain of it on the outside. When all other tricks have been worn thread-bare, I have used apple pomace as a check for picking. It is succulent and adds bulk to the ration. I don't know exactly how much good it does but, like salting a bird's tail, they don't eat each other while they are eating the pomace.

Nov. 29—It has been a large day. Every house on the ranch was cleaned, even the pits in the block house. Furthermore, the droppings were all scattered on the land, a feat which is well nigh a miracle in itself. There were five trailer loads today and two other loads from the cows during the week. This amount of manure will plaster quite an area of land on any man's farm. That is the way Harold fertilizes the soil, by plastering it.

The procedure will pay a big dividend next year and for several years to come, provided I have dictatorial powers over my own land. Perhaps I will feed my own grain, raised on my own land, to my own chickens. Who knows?

# VIEWS OF THE EDITORS

## That Drop in Poultry Prices

It was neither lack of demand nor threat of an oversupply that caused the poultry market to drop several cents last week. It was the fact that a ceiling was put on poultry prices, with no allowance made for the cost of carrying the surplus until next spring.

This is the season when chickens are marketed faster than they can be eaten. Someone must buy and hold the surplus for a few months. But suppose, for example, that poultry was 20 cents a pound when the ceiling was slapped on. Would you pay 20 cents now and 3 or 4 cents more for storing it until next spring, if, at the end of that time you knew there'd be no chance of selling it for more than 20 cents?

Only one thing could happen under these circumstances. The price had to drop 3 or 4 cents—enough to allow for the cost of carrying the surplus poultry until next spring.

That's the explanation. If you're worrying for fear it may drop further, forget your fears. The demand has never been better. We can't get enough poultry.

The one thing that concerns me is what effect price ceilings will have on production — especially of those 200 million chickens Secretary Wickard asked us to raise this fall.

What I'm wondering is whether we have patriotism or patrioti$m. Are we going to balk at raising those chickens, which will be badly needed, just to show Mr. Henderson we're annoyed? It's true that, as a result of the price ceiling, the market dropped a few cents and there's not as much profit as there was. But we won't be growing these chickens at a loss. Not by any means. Let's admit that there's still good money in poultry.

—Copyright 1942, Frank Priebe's Letter to Poultry Raisers, Oct. 22, 1942.

## Shipping

Transportation is vital. It is the key to victory. Everyone knows the load that the rails are now carrying. With the establishment of a second front, the great west to east truck lines will pour an unending supply of materials and foods into the ports of Boston, New York, Philadelphia, and Baltimore. Restrictions on domestic travel and shipments are sure to come. Cross hauling will be limited, so apples from New York will not go west to Cleveland while apples from Oregon come to Buffalo. The complexity of this situation is very great indeed, when applied to the free movement of baby chicks.

Neither incubator capacity nor the available supplies of sound breeding are geographically distributed. The big hatcheries have built up their supplies of seed stock, through careful supervision, over a long period of years, and these resources are at their back door, in the hands of men who possess the know how.

Hatcheries in New England have been paying as much as 15 cents a dozen over top Boston quotations, all fall, to get the volume and quality of eggs they need for incubation purposes. A successful hatchery depends upon good breeding as measured by egg size, shell quality, hatchability, and the growing power inherent in the chick after the egg is hatched. Any eggs will not do the trick. Eggs are not being processed into highly useful chickens in every county seat. Incubator facilities and appropriate breeding flocks are more or less bunched. Successful poultry culture in this country depends on the free movement of baby chicks. If the bureaucrats who have this question of cross hauling in hand, have any knowledge of biology, they will immediately recognize the fundamental importance of a strong organism in any livestock farming.

—Frank L. Platt, American Poultry Journal, November 1942.

## Are Turkeys Essential?

One of the questions the government is soon going to ask is this—"Is turkey raising essential to winning the war?" The turkey industry is going to have a real job of getting the true facts accepted.

Far too many people in prominent governmental positions have the opinion that the turkey is a luxury food for Thanksgiving and other festive occasions. The fact has never been brought to their attention that the turkey can convert feed into meat more quickly and efficiently than any other farm animal. Neither do they know turkey production today is a specialized industry and most turkeys are grown in large units which further increases the efficiency of the industry. Another important fact is that 33,000,000 turkeys on foot represent over 500,000,000 lbs. of meat.

These facts have been assembled and have been presented to the proper authorities. We should know soon how our industry rates among the essential.

—Turkey World, October 1942.

## Will Eggs Be Rationed?

Don't be surprised if in another five or six months eggs and poultry are being rationed. No prediction to this effect has come out of Washington, but there are several good reasons why this can take place.

First, the rationing of red meats, now being handled by reducing deliveries by packers to retailers about

21 per cent, will cause a heavier demand for eggs and poultry. Second, government purchases of eggs will be heavier. As a consequence, the supply of eggs for civilian use in 1943 will be less than it was this year.

When there isn't enough to go around, the only solution will be to ration eggs and poultry, the same as is being done on sugar, tires, farm machinery, and many other things that will soon come under rationing.

—Everybodys Poultry Magazine, November 1942.

## Why Is the Board Needed Now?

The National Nutrition Program to make America strong for victory gains emphasis as the consumer information services of the individual foods recommended therein make use of their established consumer channels to support the program.

One hundred and thirty million civilians aiding the war effort need to be educated to choose eggs and poultry meat and other nutritious foods. They select their own foods, whereas our soldiers and sailors and lend-lease peoples are by circumstance fed a nutritionally correct diet.

To aid the folks at home in their selection of a nutritious diet, 20,000 Consumer Information Centers affiliated with the Office of Civilian Defense are seeking information about poultry and eggs.

Readers of newspaper and magazine food pages, listeners of radio food programs, consumer customers of public utility home service departments in every city in the United States are asking for more information about the nutritional value of poultry meat and eggs and how to buy, prepare, cook, and serve them.

Food advertisers and food advertising agencies are writing in for nutrition facts, for recipes, for photographs about poultry meat and eggs in increasing numbers.

Professional people, dietitians, home economists, teachers, librarians, county demonstration agents, nutritionists, dentists, doctors, cafeteria managers are calling for more information than ever before about eggs and poultry meat.

The poultry industry itself is using more and more every help it can get in furnishing consumer information about eggs and poultry meat to the public it contacts.

Who would furnish this information if the Board did not? How else —but through a nationally-known clearing house — could the poultry industry meet this wartime — and later peacetime—need? The poultry industry is gradually awakening to the truth that the Board is indispensable now, and after the war is over. Perhaps that explains why various factors in the industry in mounting numbers are supporting the Board's program — morally and financially.

—Poultry and Egg National Board Reporter, October 1942.

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# No Substitute for An Egg

Washington has suggested that vegetable substitutes for meat are plentiful. Dry beans and peas are suggested as sources of protein. That is the chemistry of food. Its influence should not be overlooked. An Associated Press dispatch from Washington carries the news that nutritionists in the U. S. Dept. of Agriculture have already figured that one hour of labor devoted to pork production will return 4 to 16 times as many calories as one hour of labor devoted to hens, eggs, milk, lamb, or beef. Still further, they figure that wheat and barley will return 200 per cent more calories than does pork; and rice and field corn likewise return considerably more calories than does pork in terms of the amount of labor it takes to produce them. On a caloric basis, therefore, chickens show up as uneconomic.

That is precisely what the English did. They figured the war time feeding of their human population on a caloric basis. The production of chickens and eggs showed up badly, so feed for poultry was one of the first things that was cut down. As eminent a man as Lord Dawson of Penn, physician to the late King George V, said it was a mistake, that people needed eggs as food, but the scientists in the governing British bureau had their way and issued their ukase. Poultry in England has now dwindled to where the Englishman now gets one shell egg a month, but since he wants eggs, and needs eggs, he has been helped along by lend-lease, which enables his family to get from the United States 5 ounces of dried eggs per month, equivalent to about a dozen shell eggs.

The United States may act to eliminate some foods and some crops, that labor and production may be centered in essentials, but to follow the English error and put the diet of the American people on a caloric basis would commit their blunder all over again. The American requires something more than the principle of generating heat possessed by animals to keep their bodies warm. And that's what a calorie is,—a heat unit. There is scientific justification for considering vitamins and minerals as well as calories. A. F. Rolf once said, "There is no substitute for an egg."

—Frank L. Platt, American Poultry Journal, November 1942.

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WOULD you suppose that the lowly chicken feather could possibly be of any use in winning the war. In these fibers, patient scientists at the Western Regional Laboratory of the U. S. Department of Agriculture at Albany, Calif., have found an excellent substitute for industrial glue.

—Washington Sunday Star.

# *Warns Against Using Used Chick Boxes*

There always have been some hatcherymen who have insisted on using baby chick boxes over and over again in an attempt to reduce costs. Recently, fear of a paper shortage caused others to consider doing likewise. Some hatcherymen have even bought the boxes back from their chick customers, feeling that they were being patriotic.

The practice is dangerous, warns Joe W. Sicer, Purdue University extension poultryman and former hatcheryman. Many outbreaks of bronchitis in hatcheries, with resulting heavy financial losses, have been traced to used boxes brought in from bronchitis infected farms, and conversely, numerous broods of chicks have been all but wiped out with bronchitis contracted from an infected used box.

Under ordinary conditions, the virus causing bronchitis probably does not live long outside of the chick's body. However, following drying, the virus may live for some time in a chick box. The greatest danger comes from boxes which have been exposed to the sneezing of older birds, or to the dust of battery rooms, or poultry houses. There is also a possibility of pullorum infection carrying over in the chick box.

These dangers are just as great today, regardless of the recent paper shortage as they ever were. The question for the hatcheryman to decide is whether it is more patriotic to save paper or to save chicks that are needed for the increased egg production called for by Secretary of Agriculture Wickard.

At least one box manufacturer reports a good supply in sight of the kind of paper used in making chick boxes. Transportation difficulties are feared, but no real paper shortage is anticipated.

Should a shortage of paper in the future compel the re-use of some chick boxes, only those which are known to have had little chance for exposure to infectious diseases should be considered. All bedding material should be removed and the boxes wiped clean with a rag soaked in a disinfectant. They should then be placed in a small, tight, humid room, possibly the incubator interior, and fumigated with formaldehyde (16 oz. of formalin and 6¾ ounces of potassium permanganate per 1,000 cubic feet of air space).

—Hatchery Tribune, October 1942.

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❦ CO-OP turkeys via mail order—that's the scheme being worked out by the Northwestern Turkey Growers Association in conjunction with Montgomery Ward, says A. Randall Sanford in Washcoegg, October 1942. Frozen birds will be delivered to the buyer's door by express.

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# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

### September Egg Production

| State and Division | Number of layers on hand during September | | 100 layers Eggs per | | Total eggs produced During Sept. | | Total eggs produced Jan. to Sept. incl. | |
|---|---|---|---|---|---|---|---|---|
| | 1941 | 1942 | 1941 | 1942 | 1941 | 1942 | 1941 | 1942 |
| | Thousands | | Number | | Millions | | | |
| Me. | 1,491 | 1,620 | 1,401 | 1,356 | 21 | 22 | 231 | 245 |
| N. H. | 1,313 | 1,332 | 1,305 | 1,338 | 17 | 18 | 182 | 199 |
| Vt. | 694 | 701 | 1,308 | 1,278 | 9 | 9 | 99 | 110 |
| Mass. | 3,096 | 3,453 | 1,326 | 1,320 | 41 | 46 | 469 | 506 |
| R. I. | 379 | 352 | 1,212 | 1,356 | 5 | 5 | 56 | 57 |
| Conn. | 2,076 | 2,139 | 1,230 | 1,428 | 26 | 31 | 291 | 320 |
| N. Y. | 10,222 | 10,614 | 1,158 | 1,164 | 118 | 124 | 1,463 | 1,509 |
| N. J. | 4,236 | 4,746 | 1,158 | 1,152 | 49 | 55 | 644 | 702 |
| Pa. | 12,153 | 12,590 | 1,095 | 1,098 | 133 | 138 | 1,722 | 1,899 |
| N. Atl. | 35,660 | 37,547 | 1,175 | 1,193 | 419 | 448 | 5,157 | 5,547 |
| Ohio | 13,856 | 14,816 | 1,104 | 1,092 | 153 | 162 | 1,910 | 2,064 |
| Ind. | 9,156 | 10,451 | 1,074 | 1,038 | 98 | 108 | 1,253 | 1,420 |
| Ill. | 13,522 | 14,628 | 963 | 990 | 130 | 145 | 1,686 | 1,933 |
| Mich. | 7,722 | 7,968 | 1,068 | 1,098 | 82 | 87 | 1,102 | 1,168 |
| Wis. | 10,999 | 11,876 | 1,080 | 1,077 | 119 | 128 | 1,434 | 1,656 |
| E. N. Cent. | 55,255 | 59,739 | 1,053 | 1,055 | 582 | 630 | 7,385 | 8,241 |
| Minn. | 13,954 | 16,224 | 1,059 | 1,068 | 148 | 173 | 1,869 | 2,320 |
| Iowa | 18,806 | 20,890 | 978 | 1,047 | 184 | 219 | 2,502 | 3,062 |
| Mo. | 13,912 | 15,416 | 1,002 | 978 | 139 | 151 | 1,830 | 2,144 |
| N. Dak. | 2,896 | 3,474 | 1,038 | 984 | 30 | 34 | 352 | 451 |
| S. Dak. | 4,940 | 5,606 | 1,005 | 1,002 | 50 | 56 | 562 | 749 |
| Nebr. | 7,946 | 9,468 | 1,011 | 1,044 | 80 | 99 | 1,067 | 1,362 |
| Kans. | 9,986 | 11,550 | 1,014 | 981 | 101 | 113 | 1,317 | 1,614 |
| W. N. Cent. | 72,440 | 82,628 | 1,010 | 1,023 | 732 | 845 | 9,499 | 11,702 |
| Del. | 680 | 704 | 1,044 | 1,020 | 7 | 7 | 95 | 99 |
| Md. | 2,466 | 2,578 | 1,017 | 1,002 | 25 | 26 | 304 | 332 |
| Va. | 5,917 | 6,128 | 1,011 | 972 | 60 | 60 | 702 | 801 |
| W. Va. | 2,640 | 2,867 | 1,116 | 1,062 | 29 | 30 | 342 | 399 |
| N. C. | 5,868 | 6,517 | 780 | 765 | 46 | 50 | 604 | 708 |
| S. C. | 2,458 | 2,702 | 678 | 696 | 17 | 19 | 228 | 257 |
| Ga. | 4,610 | 5,462 | 678 | 690 | 31 | 38 | 436 | 533 |
| Fla. | 1,454 | 1,532 | 846 | 864 | 12 | 13 | 164 | 180 |
| S. Atl. | 26,093 | 28,490 | 870 | 853 | 227 | 243 | 2,875 | 3,309 |
| Ky. | 6,018 | 7,457 | 972 | 954 | 58 | 71 | 724 | 929 |
| Tenn. | 6,044 | 7,088 | 900 | 912 | 54 | 65 | 672 | 798 |
| Ala. | 4,683 | 5,380 | 792 | 744 | 37 | 40 | 448 | 541 |
| Miss. | 4,676 | 5,172 | 654 | 606 | 31 | 31 | 408 | 477 |
| Ark. | 5,192 | 5,856 | 762 | 726 | 40 | 43 | 519 | 610 |
| La. | 3,090 | 8,665 | 624 | 600 | 19 | 22 | 265 | 301 |
| Okla. | 7,982 | 9,186 | 900 | 882 | 72 | 81 | 921 | 1,122 |
| Tex. | 18,108 | 21,164 | 894 | 870 | 162 | 184 | 2,096 | 2,388 |
| S. Cent. | 55,793 | 64,968 | 848 | 827 | 473 | 537 | 6,053 | 7,166 |
| Mont. | 1,431 | 1,560 | 1,050 | 1,017 | 15 | 16 | 178 | 198 |
| Idaho | 1,518 | 1,615 | 1,083 | 1,122 | 16 | 18 | 204 | 224 |
| Colo. | 2,218 | 2,646 | 966 | 1,041 | 21 | 28 | 274 | 336 |
| Utah | 1,618 | 1,752 | 1,248 | 1,239 | 20 | 22 | 229 | 250 |
| Wash. | 4,648 | 4,990 | 1,218 | 1,188 | 57 | 59 | 697 | 706 |
| Oreg. | 2,502 | 2,522 | 1,134 | 1,194 | 28 | 30 | 356 | 377 |
| Calif. | 10,364 | 10,580 | 1,137 | 1,104 | 118 | 117 | 1,387 | 1,513 |
| West. | 26,137 | 27,729 | 1,121 | 1,118 | 293 | 310 | 3,559 | 3,863 |
| U. S. | 271,378 | 301,101 | 1,005 | 1,001 | 2,726 | 8,013 | 34,528 | 39,828 |

Hens and pullets on farms laid 3,013,000,000 eggs in September—11 per cent more than the previous record September production (last year) and 32 per cent above the 10-year (1931-40) average. A record high production for September was reached in all parts of the country except the Western States where the production was 7 per cent less than the record of 1930. Increases in egg production over a year ago were 15 per cent in the West North Central, 14 per cent in the South Central, 8 per cent in the East North Central, 7 per cent in the North Atlantic and South Atlantic States, and 6 per cent in the Western States. The 10-year September average production was exceeded in all parts of the country, ranging from 6 per cent in the Western States to 48 per cent in the West North Central States.

The combined egg production during the first nine months of this year was also the largest of record for the period—15 per cent above the previous high of last year and 27 per cent above the 10-year average.

The rate of egg production per layer during September was slightly less than the high record of September last year—10.01 eggs per layer compared with 10.05 in September last year and 8.90, the 10-year average. New record high rates of lay for September were set in the North Atlantic and North Central States. In the South Atlantic and South Central States the rate was 2 per cent below the record high of last year. In the Western States it was 2 per cent below the record level of September 1937. The September rates of lay in all areas were from 4 to 19 per cent above the 10-year average.

The production in U. S. farm flocks of 121.8 eggs per layer during the first 9 months of this year was 2 per cent above the previous record high of last year and 11 per cent above the 10-year average for those months.

There was an average of 301,101,000 layers in farm flocks during September, a record high number for the month—11 per cent above a year ago and 18 per cent above the 10-year average. Increases above a year ago varied from 5 per cent in the North Atlantic to 16 per cent in the South Central States. Numbers of layers during September in the different areas were from 2 to 26 per cent greater than the 10-year average.

The total number of all young chickens in farm flocks on October 1 averaged 114.5 birds, the largest number of record. This was 6 per cent above a year ago and 21 per cent above the 10-year (1931-40) average. There was a record high number of young chickens in all parts of the country except the South Atlantic area, which was 4 per cent below the record number in that area on October 1, 1939. Increases above a year ago were 11 per cent in the South Central, 8 per cent in the West North Central and Western States, 5 per cent in the North Atlantic, and 4 per cent in the East North Central States. There was a decrease of 3 per cent in the South Atlantic States. Young chicken numbers on October 1 were far above the 10-year average in all parts of the country.

—Comment from U. S. D. A. Monthly Egg and Poultry Production Report.

## Receipts of Eggs and Poultry

Weekly receipts of eggs at the central western packing plants continued to decline seasonally during October, but remain around 27 per cent greater than a year ago. Plant averages of above 600 cases per week in September dropped below 400 by mid-October and were less than 20 per cent of the season's peak of 2,280 cases in April. At Pacific Coast plants there was a slight falling off in receipts from week to week, but production was ap-

**Receipts of Eggs (cases) at 4 Markets***

| | September | | | Jan. to Sept., Inc., | | |
|---|---|---|---|---|---|---|
| Geographic Section | 1942 | 1941 | % change | 1942 | 1941 | % change |
| New England | 62,870 | 57,160 | + 10.0 | 654,467 | 405,613 | + 61.4 |
| Middle Atlantic | 159,345 | 125,415 | + 27.1 | 2,217,025 | 1,756,766 | + 26.2 |
| South Atlantic | 9,790 | 9,715 | + 0.8 | 297,765 | 185,377 | + 60.6 |
| East North Central | 178,553 | 133,922 | + 33.3 | 2,720,655 | 2,625,347 | + 3.6 |
| West North Central | 393,827 | 384,480 | + 2.4 | 4,928,935 | 6,035,097 | – 18.3 |
| South Central | 1,960 | 370 | +429.7 | 153,426 | 73,641 | +108.3 |
| Mountain | 17,851 | 16,673 | + 7.1 | 187,559 | 305,623 | – 38.6 |
| Pacific | 20,825 | 31,167 | – 33.2 | 101,742 | 143,202 | – 29.0 |
| Miscellaneous | 229 | 209 | + 9.6 | 3,034 | 3,052 | – 0.6 |
| TOTAL | 845,250 | 759,111 | + 11.3 | 11,264,605 | 11,533,718 | – 2.3 |
| **Receipts of Dressed Poultry (pounds) at 4 Markets*** | | | | | | |
| New England | 2,266,351 | 1,399,215 | + 62.0 | 7,617,231 | 8,646,674 | – 11.9 |
| Middle Atlantic | 4,085,270 | 4,992,995 | – 18.2 | 43,389,910 | 46,345,377 | – 6.4 |
| South Atlantic | 6,242,269 | 4,067,898 | + 53.5 | 54,013,458 | 31,297,759 | + 72.6 |
| East North Central | 4,935,039 | 3,049,773 | + 61.8 | 25,434,810 | 23,973,993 | + 6.1 |
| West North Central | 23,989,286 | 19,375,885 | + 23.8 | 100,921,502 | 97,614,210 | + 3.4 |
| South Central | 1,235,108 | 1,051,210 | + 17.5 | 12,674,534 | 14,752,071 | – 14.1 |
| Mountain | 91,491 | 131.986 | – 30.7 | 3,768,010 | 3,330,288 | + 13.1 |
| Pacific | 256,411 | 325,326 | – 21.2 | 7,837,486 | 8,836,934 | – 11.3 |
| Miscellaneous | 132,550 | 0 | – | 391,230 | 0 | – |
| TOTAL | 43,233,775 | 34,394,288 | + 25.7 | 256,048,171 | 234.797,306 | + 9.1 |

*New York, Chicago, Philadelphia and Boston.

**Receipts of Eggs and Poultry at Central Western Primary Markets**

| Week Ending | Cases of Eggs | | | Pounds of Poultry (000 omitted) | | | Pounds of Young Stock (000 omitted) | | | Pounds of Fowl (000 omitted) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1942 | 1941 | % Chg. | 1942 | 1941 | % Chg. | 1942 | 1941 | % Chg. | 1942 | 1941 | % Chg. |
| Oct. 3 | 103,220 | 81,624 | +26.46 | 10,534 | 6,730 | +56.51 | 6,143 | 4,287 | +43.30 | 4,340 | 2,299 | +88.78 |
| Oct. 10 | 89,353 | 70,053 | +27.55 | 9,745 | 7,669 | +27.07 | 5,377 | 4,899 | + 9.76 | 4,310 | 2,692 | +60.11 |
| Oct. 17 | 83,768 | 65,504 | +27.91 | 8,333 | 7,574 | +10.03 | 4,560 | 4,894 | – 6.81 | 3,740 | 2,644 | +41.45 |
| Oct. **24** | 82,365 | 55,111 | +49.45 | 8,155 | 7,406 | +10.11 | 4,596 | 4,729 | – 2.82 | 3,467 | 2,547 | +36.14 |
| Oct. **31** | 76,056 | 47,051 | +61.64 | 9.881 | 8.039 | +22.91 | 5.422 | 5.131 | + 5.66 | 4.321 | 2,813 | +53.59 |

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| October 3 | 23 | 36,975 | −3.1 | +23.8 |
| October 10 | 24 | 40,002 | −1.8 | +18.0 |
| October 17 | 24 | 36,534 | −1.1 | +16.2 |
| October 24 | 28 | 41,773 | +2.5 | +24.6 |
| October 31 | 22 | 39,478 | +4.6 | +28.9 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| October 3 | 56 | 51,510 | 46,273 | −2.03 | +11.32 |
| October 10 | 58 | 54,985 | 51,138 | −1.94 | + 7.52 |
| October 17 | 59 | 55,059 | 50,347 | −0.38 | + 9.36 |
| October 24 | 59 | 53,480 | 50,903 | −1.55 | + 5.06 |
| October 31 | 59 | 52,683 | 51,543 | −1.49 | + 2.21 |

proximately 10 per cent above the year previous. Receipts at the 4 principal markets declined, but the volume during October was exceeding a year ago by about 16 per cent. During August and September receipts on the 4 larger markets was approximately 12 per cent above the year previous. Prior to August, receipts at these markets were lighter than in 1941 due to the diversion of eggs from terminal markets to drying plants and army camps.

Marketings of live poultry in the central west which have been running exceptionally heavy apparently reached the seasonal peak during the week ending October 3. Subsequent declines from week to week have been rather sharp, amounting to 17 per cent the week ending October 17. The volume during that week was only 10 per cent over a year ago whereas a few weeks previous it was 89 per cent above. Receipts of young stock dropped to nearly 7 per cent below a year ago, while fowl was 41 per cent heavier. The average receipts of all poultry per plant for the week ending October 17 were 39,685 pounds which was about the same as in early September. During the week ending October 3, 51,137 pounds average per plant was received, which was almost 10 times greater than the average of the low point in March.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Egg Prices

Egg markets were firm during October except on fanciest quality large eggs which were irregular. All declines on the latter were regained and closing prices were firm and full high for the season and considerably higher than a year ago. On some eastern markets, nearby fancy large eggs were burdensome early in the month with consumer buying slowed down following rather sharp retail price advances during September. Wholesale prices of fancy large whites declined as much as 1½ cents and browns 3 cents before demand again picked up.

### 1942 Egg Prices at New York City

| Kind | Oct.2 | Oct. 9 | Oct. 16 | Oct. 23 | Oct. 30 | Oct. 30 '41 |
|---|---|---|---|---|---|---|
| Mixed Color Firsts | 37½-37¾ | 37¼ | 37¾ | 37¾ | 37¾ | 33½ |
| Wholesale Sales of Fancy and Extra Fancy White | 50-55½ | 51-55 | 50-54 | 50-55½ | 51-55½ | 40½-43 |
| White Specials | 49 | 49 | 49 | 49 | 49 | 40 |
| Pacific Coast Specials | 54¼-54½ | 54½ | 54½ | 54½ | 54½ | 46-46½ |
| Brown Specials | 47 | 46½ | 46½ | 47 | 47 | 39½ |

Under the O.P.A. order, temporary 60-day ceilings prices were established on shell, dried, frozen and tanner eggs. These ceiling prices were the highest prices prevailing during the period September 28 to October 3, inclusive. Confusion with regard to ceilings, grades and differentials resulted in an industry conference in Washington October 14-15. It is anticipated that a permanent O.P.A. order will be forthcoming at the expiration of the temporary period on December 3.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Poultry Meat Prices

Prices of live poultry were easy and irregular on most markets during the early part of October. Receipts of all classes were heavy and demand unsatisfactory. The latter half of the month there was a reversal of trend as supplies were lighter and weather was more favorable to consumption. Prices which had dropped 1 to 4 cents below the O.P.A. ceiling prices recovered and most stock was bringing ceiling prices at the close with demand active. Under the terms of the O.P.A. order effective October 5, ceiling prices for all chickens, fowl, roosters, capons, turkeys, ducks, geese, pigeons, squabs and game birds including live, dressed, drawn, split, disjointed when sold for human consumption, would be the highest prevailing price during the period of September 28 to October 3. An immediate effect of the price ceiling order was a sharp drop in prices paid by buyers in producing areas. Such action was explained as necessary to offset the carrying charges on poultry being dressed and moved into storage, the ultimate selling price of which must comply with ceiling prices.

Prices of dressed poultry were easy and irregular, dropping below the established ceilings during October as a result of unusually liberal receipts.

These declines were quite general but moderate. At Chicago heavy buying for the armed forces was a supporting factor. On the New York market prices worked ½ to 1 cent lower on most sizes of dressed chickens. Heavier sizes of box-packed chickens recovered all declines to close at the ceiling, but medium sizes were still 1 cent below due to seasonal poor quality and to competition with ice packed poultry which has a lower ceiling than box packed. Small box-packed broilers were unchanged throughout the period.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Egg-Feed Ratios

New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1942 | 1941 | 1940 | Avg. Egg Price per Doz. (Dollars) 1942 | 1941 | 1940 | Avg. Feed Cost per 100 lbs. (Dollars) 1942 | 1941 | 1940 |
|---|---|---|---|---|---|---|---|---|---|
| October 1 | 5.2 | 6.7 | 6.5 | .444 | .358 | .288 | 2.32 | 2.41 | 1.88 |
| October 8 | 5.0 | 6.1 | 6.2 | .455 | .379 | .305 | 2.26 | 2.32 | 1.88 |
| October 15 | 5.2 | 6.2 | 6.1 | .455 | .357 | .31 | 2.36 | 2.23 | 1.88 |
| October 22 | 5.2 | 6.0 | 6.1 | .455 | .37 | .316 | 2.36 | 2.22 | 1.94 |
| October 29 | 5.2 | 5.7 | 6.0 | .455 | .39 | .32 | 2.35 | 2.23 | 1.92 |

Chicago Egg-Feed Ratio

|  | Dozens of Eggs to Buy 100 lbs. of Laying Ration |  |  |  |  |
|---|---|---|---|---|---|
| Year | Oct. 3 | Oct. 10 | Oct. 17 | Oct. 24 | Oct. 31 |
| 1942 | 4.13 | 4.20 | 4.00 | 4.00 | 4.00 |
| 1941 | 5.05 | 4.83 | 4.56 | 4.61 | 4.55 |

Central California Egg-Feed Ratio

|  | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration |  |  |  |  |  |
|---|---|---|---|---|---|---|
|  | 1942 | 1941 | 1940 | 1939 | 1938 | 1937 |
| September | 5.28 | 5.76 | 5.66 | 5.79 | 4.68 | 6.16 |
| January-September | 7.01 | 7.04 | 8.70 | 7.31 | 7.23 | 9.17 |
| Year |  | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 |

—Data compiled by Dorothy B. Erdahl, University of California.

## Eggs in Storage

Total shell egg equivalent of October 1 storage holdings of shell and frozen eggs was 11,640,000 cases, exceeding those of a year previous by 1,441,000 cases and the 5-year average by 2,218,000 cases.

Shell eggs alone totaled 5,377,000 cases, a decrease of 64,000 cases from the corresponding date a year ago. On September 1 stocks were 620,000 cases heavier than a year previous. Incomplete reports from driers show 1,687,000 cases of storage shell eggs earmarked for drying as compared with 2,660,000 cases reported as of September 1. Withdrawals from storage during September totaled 1,374,000 cases which was double the amount withdrawn during September 1941. Reductions in holdings in the 35 markets October 3 to 24 were at a heavier rate than for September, totaling over a million cases. Withdrawals for the corresponding period of 1941 was 663,000 cases.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

Storage Holdings of Eggs

| Kind | Oct. 1 5-Yr. Avg. 1937-41 | Oct. 1 1941 | Sept. 1 1942 | Oct. 1 1942 | % Change Oct. '41-Oct. '42 |
|---|---|---|---|---|---|
|  |  | Thousands |  |  |  |
| Shell Egg (cases) |  |  |  |  |  |
| AMA and FSCC |  | 595 |  |  |  |
| Commercial | 5,448 | 4,846 | 6,751 | 5,377 | +10.95 |
| Total | 5,747 | 5,441 | 6,751 | 5,377 | – 1.18 |
| Frozen Eggs (lbs.) |  |  |  |  |  |
| AMA and FSCC |  | 29,300 | 5,603 | 5,695 | –80.57 |
| Commercial | 131,971 | 149,138 | 266,439 | 229,173 | +53.66 |
| Total | 137,831 | 178,438 | 272,042 | 234,868 | +31.62 |
| Frozen Case Equivalent (cases)* |  |  |  |  |  |
| Total | 3,675 | 4,758 | 7,254 | 6,263 | +31.63 |
| Total (cases) | 9,422 | 10,199 | 14,005 | 11,640 | +14.12 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

## Poultry in Storage

U. S. storage stocks of dressed poultry on October 1 were the heaviest October 1 holdings on record, totaling 116½ million pounds as compared

Storage Holdings of Poultry

| Kind | Oct. 1 5-Yr. Avg. 1937-41 | Oct. 1 1941 | Sept. 1 1942 | Oct. 1 1942 | % Change Oct. '41-Oct. '42 |
|---|---|---|---|---|---|
|  |  | Thousand Pounds |  |  |  |
| Broilers | 9,629 | 11,820 | 7,857 | 9,283 | –21.47 |
| Fryers | 5,445 | 8,922 | 5,830 | 11,292 | +26.55 |
| Roasters | 8,009 | 12,934 | 7,650 | 20,134 | +55.66 |
| Fowls | 14,994 | 20,613 | 22,725 | 29,866 | +44.88 |
| Turkeys | 8,701 | 9,171 | 12,132 | 8,416 | – 8.24 |
| Ducks | 11,136 | 12,601 | 9,216 | 9,526 | –24.41 |
| Miscellaneous | 16,561 | 12,737 | 13,468 | 17,396 | +36.57 |
| Unclassified |  | 7,903 | 7,767 | 10,622 | +34.40 |
| Total | 74,475 | 96,701 | 86,645 | 116,535 | +20.51 |

with the 5-year (1937-1941) average of 74½ million pounds and 96¾ million pounds last year. The net increase in holdings for September was 30 million pounds as compared to 11 million last year and a 5-year average of less than 5 million pounds. The September increase in stocks of roasters amounted to 12½ million pounds, while fryers and fowl showed increases of 5½ and 7 million pounds, respectively.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Egg Breaking Operations

**Frozen Egg Production 1940-42**

| Month | 1940 | 1941 | 1942 |
|---|---|---|---|
| | Pounds | Pounds | Pounds |
| January | 707,000 | 915,000 | 3,075,000 |
| February | 733,000 | 8,140,000 | 13,626,000 |
| March | 29,481,000 | 39,386,000 | 42,686,000 |
| April | 44,029,000 | 46,826,000 | 59,001,000 |
| May | 53,662,000 | 53,303,000 | 57,090,000 |
| June | 41,283,000 | 46,560,000 | 52,750,000 |
| July | 12,749,000 | 26,555,000 | 17,755,000 |
| August | 5,115,000 | 9,848,000 | 5,636,000 |
| September | 1,249,000 | 2,845,000 | 3,050,000 |
| October | 249,000 | 1,951,000 | |
| November | 216,000 | 588,000 | |
| December | 105,000 | 265,000 | |
| Total | 189,578,000 | 237,182,000 | |

**Dried Egg Production, September 1941-42**

| Commodity | Sept. 1941 | Sept. 1942 | % change in 1942 |
|---|---|---|---|
| | Pounds | Pounds | |
| Whole ........................................ | 3,148,271 | 20,632,925 | +555 |
| Albumen ........................................ | 225,041 | 170,611 | – 24 |
| Yolks ........................................ | 280,261 | 132,662 | – 53 |
| Total ........................................ | 3,653,573 | 20,936,198 | +473 |
| Firms reporting | | 61 | |

## Government Purchases

**Purchases of Eggs and Poultry by the USDA**

| Week Ending | Shell Eggs | Dried Eggs |
|---|---|---|
| | Cases | 1,000 lbs. |
| October 3 | | |
| October 10 | | |
| October 17 | | 3,757 |
| October 24 | | 452 |
| October 31 | | 1,399 |
| 1942 Total to October 31 | 451,445 | 199,023 |

## Hatchery Operations

The production of baby chicks by commercial hatcheries in September set a new high record for the month. The output of 22,323,000 chicks was 17 per cent above the previous high output of September 1941. The number of eggs set was 14 per cent larger than the number set in September last year. Chicks booked on October 1 for later delivery showed an increase of 32 per cent over the same date a year ago.

The strong demand for chicks is largely the result of the heavy demand for broilers. The output of chicks during September was limited by the short supply of hatching eggs. Compared with September 1941, the output of chicks increased 57 per cent in the West North Central States, 35 per cent in the Middle Atlantic, 27 per cent in the Pacific Coast and South Atlantic States, and 2 per cent in the New England and East North Central States. Reductions reported were 4 per cent in the South Central States and 59 per cent in the Mountain States.

—Comment from U. S. D. A. Hatchery Production Report.

**Chicks Hatched by Commercial Hatcheries**

| Geographic Division | Sept. 1939 | Sept. 1940 | Sept. 1941 | Sept. 1942 | % chg. from Sept. 1941 | Jan.-Sept. Inc. 1941 | Jan.-Sept. Inc. 1942 | % chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 2,767 | 2,135 | 3,342 | 3,419 | + 2 | 56,275 | 64,460 | +15 |
| Middle Atlantic | 1,245 | 1,289 | 2,400 | 3,241 | +35 | 78,153 | 88,414 | +13 |
| South Atlantic | 3,246 | 3,270 | 4,724 | 5,980 | +27 | 98,382 | 111,594 | +13 |
| E. N. Central | 1,802 | 1,430 | 2,334 | 2,375 | + 2 | 277,655 | 294,633 | + 6 |
| W. N. Central | 1,588 | 890 | 1,099 | 1,724 | +57 | 302,376 | 352,426 | +17 |
| South Central | 1,433 | 1,731 | 2,755 | 2,652 | – 4 | 99,925 | 120,888 | +21 |
| Mountain | 107 | 100 | 159 | 65 | –59 | 17,511 | 16,516 | – 6 |
| Pacific | 2,030 | 1,724 | 2,256 | 2,867 | +27 | 53,603 | 58,713 | +10 |
| U. S. | 14,218 | 12,569 | 19,069 | 22,323 | +17 | 983,880 | 1,107,644 | +13 |

**Chicks Booked—Proportion Light and Heavy Breed Hatched—Sexed**

| Geographic Division | Chicks booked Oct. 1 | % Light breed hatched | | % Heavy breed hatched | | Sexing |
|---|---|---|---|---|---|---|
| | % change from Oct. 1, 1941 | Sept. 1941 | Sept. 1942 | Sept. 1941 | Sept. 1942 | % change from Sept. 1941 |
| New England | + 14 | 2 | 2 | 98 | 98 | +107 |
| Middle Atlantic | + 22 | 7 | 8 | 93 | 92 | + 33 |
| South Atlantic | +157 | 0 | 0 | 100 | 100 | – 56 |
| E. N. Central | + 63 | 11 | 13 | 89 | 87 | + 46 |
| W. N. Central | + 41 | 33 | 55 | 67 | 45 | +649 |
| South Central | + 43 | 18 | 13 | 82 | 87 | — |
| Mountain | — | 10 | — | 90 | — | — |
| Pacific | + 14 | 52 | 52 | 48 | 48 | + 19 |
| U. S. | + 32 | 11 | 15 | 89 | 85 | + 67 |

# RESULTS OF LAYING TESTS

A pen of Rhode Island Reds from Crooks Farm entered in the Pennsylvania Test topped all entries in the country to win the 1942 laying tests. This pen also established a new record for the breed.

High hen over all breeds for the year was a Harco Orchards' Rhode Island Red which laid 338 eggs and scored 371.55 points at the Maine Test, also setting a new breed record for individuals.

Other breeds to establish new pen records were White Rocks, White Minorcas, White Giants, New Hampshires, Columbian Rocks, Buff Rocks, and Partridge Rocks.

New individual records were made by Australorps, New Hampshires, Anconas, White Wyandottes, White Giants, and Partridge Rocks.

Average production in all tests increased .82 eggs and .81 points above that of a year ago. Mortality dropped from 19.45 per cent in 1941 to 18.29 per cent this year. Arizona had the lowest mortality.

For the second time in four years, Irving Kauder won the Poultry Tribune trophy for the highest average production of any breeder with five or more pens entered in standard pullet laying tests. His 130 birds entered averaged 246.37 eggs and 265.37 points per bird.

The Supreme Achievement Trophy, formerly the Poultry Item Trophy, but now awarded by the American Poultry Journal, also went to Irving Kauder for having the highest record of all breeders on his five best pens.

## Twenty High Pens, All Breeds, for the Year

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 3836 | 4089.70 | Pennsylvania |
| Hillview Poultry Farm | Rhode Island Red | 3831 | 3970.70 | California |
| Babcock's Hatchery | White Leghorn | 3839 | 3940.40 | Pennsylvania |
| W. H. Wilson | Rhode Island Red | 3677 | 3924.80 | Georgia |
| Holser's Valley Farm | White Leghorn | 3632 | 3891.45 | Storrs |
| Harco Orchards | Rhode Island Red | 3559 | 3861.20 | Rhode Island |
| J. A. Hanson | White Leghorn | 3526 | 3821.85 | Western New York |
| Foreman Poultry Farm | White Leghorn | 3538 | 3816.60 | Missouri |
| To-Lani Farm | Rhode Island Red | 3630 | 3794.55 | Georgia |
| Kauder's Pedigreed Leghorns | White Leghorn | 3529 | 3781.60 | Storrs |
| Thomas H. Mettler | Rhode Island Red | 3812 | 3778.70 | Storrs |
| J. A. Hanson | White Leghorn | 3589 | 3776.50 | Georgia |
| Crooks Farm | Rhode Island Red | 3548 | 3775.85 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 3438 | 3743.65 | Texas |
| G. B. Treadwell | Rhode Island Red | 3562 | 3740.45 | Maine |
| Dryden Poultry Farm | Barred Rock | 3633 | 3706.75 | Pennsylvania |
| George M. Anthony | White Leghorn | 3536 | 3693.35 | Pennsylvania |
| J. A. Hanson | White Leghorn | 3458 | 3691.70 | Pennsylvania |
| Babcock's Hatchery | White Leghorn | 3618 | 3664.45 | Georgia |
| E. B. Parmenter | Rhode Island Red | 3432 | 3660.60 | California |

## High Pen in Each Test for the Year

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 3836 | 4089.70 | Pennsylvania |
| Hillview Poultry Farm | Rhode Island Red | 3831 | 3970.70 | California |
| W. H. Wilson | Rhode Island Red | 3677 | 3924.80 | Georgia |
| Holser's Valley Farm | White Leghorn | 3632 | 3891.45 | Storrs |
| Harco Orchards | Rhode Island Red | 3559 | 3861.20 | Rhode Island |
| J. A. Hanson | White Leghorn | 3526 | 3821.85 | Western New York |
| Foreman Poultry Farm | White Leghorn | 3538 | 3816.60 | Missouri |
| Kauder's Pedigreed Leghorns | White Leghorn | 3438 | 3743.65 | Texas |
| G. B. Treadwell | Rhode Island Red | 3562 | 3740.45 | Maine |
| Holser's Valley Farm | White Leghorn | 3554 | 3632.80 | Passaic, N. J. |
| George A. Pearce | New Hampshire | 3418 | 3609.35 | Hunterdon, N. J. |
| Bodine Pedigreed Leghorns | White Leghorn | 3362 | 3558.60 | Central New York |
| Gold Spot Hatchery | White Leghorn | 3305 | 3483.35 | Arizona |
| Marshall Farm | White Leghorn | 3278 | 3357.20 | Florida |
| Robert Chapman | Rhode Island Red | 3358 | 3297.35 | Oklahoma |
| Crooks Farm | Rhode Island Red | 3103 | 3198.25 | Long Island |
| J. J. Warren | Rhode Island Red | 2992 | 3132.80 | Michigan |

## High Pen in Each Test for September

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 213 | 233.35 | Pennsylvania |
| Hillview Poultry Farm | Rhode Island Red | 215 | 229.25 | California |
| To-Lani Farm | Rhode Island Red | 213 | 227.60 | Georgia |
| Bodine Pedigreed Leghorns | White Leghorn | 209 | 226.05 | Central New York |
| Foreman Poultry Farm | White Leghorn | 205 | 218.80 | Maine |
| Holser's Valley Farm | White Leghorn | 206 | 213.70 | Passaic, N. J. |
| Schwegler's Hatchery | White Leghorn | 196 | 209.50 | Western New York |
| Dryden Poultry Farm | Barred Rock | 190 | 200.10 | Storrs |
| Sunrise Poultry Farm | White Leghorn | 188 | 195.60 | Michigan |
| Booth Farms and Hatchery | White Leghorn | 182 | 193.50 | Texas |
| Harco Orchards | Rhode Island Red | 173 | 191.50 | Rhode Island |
| P. R. McCormack | Rhode Island Red | 183 | 189.50 | Missouri |
| Robert Chapman | Rhode Island Red | 182 | 184.80 | Oklahoma |
| Crooks Farm | Rhode Island Red | 185 | 183.60 | Long Island |
| Rapp's Poultry Farm | White Leghorn | 167 | 183.00 | Hunterdon, N. J. |
| Marshall Farm | White Leghorn | 171 | 181.75 | Florida |
| Foreman Poultry Farm | White Leghorn | 177 | 180.75 | Arizona |

## High Pen in Each Breed for the Year

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Crooks Farm | Rhode Island Red | 3836 | 4089.70 | Pennsylvania |
| Babcock's Hatchery | White Leghorn | 3839 | 3940.40 | Pennsylvania |
| Dryden Poultry Farm | Barred Rock | 3633 | 3706.75 | Pennsylvania |
| George A. Pearce | New Hampshire | 3418 | 3609.35 | Hunterdon, N. J. |
| Riley Poultry Farm | White Rock | 3284 | 3353.35 | Storrs |
| Harvey E. Taylor | White Wyandotte | 2873 | 3012.70 | Texas |
| Laclede Hatchery | Australorp | 2570 | 2757.85 | Missouri |
| T. D. Brown | White Minorca | 2596 | 2741.35 | Texas |
| Imperial Breeding Farm | White Giant | 2615 | 2700.55 | Maine |
| Mrs. C. W. Reynolds | Columbian Rock | 2590 | 2657.25 | Missouri |
| Raymond S. Thomas | Ancona | 2550 | 2542.35 | Passaic, N. J. |
| Horne's Hatchery | Black Minorca | 2265 | 2469.50 | Texas |
| Imperial Poultry Farm | New Hampshire White | 2291 | 2440.80 | Missouri |
| Dryden Poultry Farm | Cross | 2278 | 2354.85 | California |
| Miami Chick Hatchery | Buff Rock | 2108 | 2137.65 | Michigan |
| Iowa Master Breeders | Buff Orpington | 2159 | 2062.95 | Texas |
| Charles A. Richardson | Buff Leghorn | 2138 | 2027.65 | Hunterdon, N. J. |
| Henry F. Waitt | Buff Minorca | 2021 | 2023.25 | Maine |
| Wellington Wells | Silver Laced Wyandotte | 2042 | 1912.95 | Maine |
| Philip Maddux | Black Leghorn | 1592 | 1494.35 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 1463 | 1429.05 | Florida |

## High Hen in Each Breed for the Year

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 338 | 371.55 | Maine |
| J. A. Hanson | White Leghorn | 347 | 368.15 | Storrs |
| Joachim Breeding Farm | New Hampshire | 332 | 347.05 | Storrs |
| Dryden Poultry Farm | Barred Rock | 313 | 342.20 | Storrs |
| Laclede Hatchery | Australorp | 301 | 328.40 | Missouri |
| Raymond S. Thomas | Ancona | 300 | 328.40 | Pennsylvania |
| G. W. Schottman | White Wyandotte | 293 | 321.05 | Missouri |
| Bagby Poultry Farm | White Rock | 285 | 304.70 | Texas |
| Imperial Breeding Farm | White Giant | 286 | 297.05 | Maine |
| Imperial Poultry Farm | New Hampshire White | 265 | 287.55 | Missouri |
| Maine Test Pen | Cross | 267 | 285.55 | Maine |
| Harry L. Phillips | Columbian Rock | 258 | 275.25 | Missouri |
| T. D. Brown | White Minorca | 245 | 263.70 | Texas |
| Horne's Hatchery | Black Minorca | 240 | 262.90 | Texas |
| Henry F. Waitt | Buff Minorca | 221 | 232.65 | Maine |
| Donald C. Chandler | Silver Laced Wyandotte | 234 | 232.45 | Maine |
| Charles A. Richardson | Buff Leghorn | 238 | 229.90 | Hunterdon, N. J. |
| Miami Chick Hatchery | Buff Rock | 201 | 218.05 | Michigan |
| Iowa Master Breeders | Buff Orpington | 258 | 217.75 | Texas |
| Philip Maddux | Black Leghorn | 196 | 202.65 | Long Island |
| F. G. Romance | Partridge Plymouth Rock | 153 | 157.60 | Florida |

## High Hen in Each Test for the Year

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 338 | 371.55 | Maine |
| J. A. Hanson | White Leghorn | 347 | 368.15 | Storrs |
| Foreman Poultry Farm | White Leghorn | 342 | 362.95 | Missouri |
| Crooks Farm | Rhode Island Red | 331 | 361.50 | Pennsylvania |
| Alampi Poultry Farm | Rhode Island Red | 327 | 359.10 | Passaic, N. J. |
| J. A. Hanson | White Leghorn | 336 | 355.70 | Western New York |
| Kauder's Pedigreed Leghorns | White Leghorn | 333 | 353.20 | Georgia |
| Charles D. Deisher | White Leghorns | 331 | 351.55 | Texas |
| Foreman Poultry Farm | White Leghorn | 317 | 347.55 | Central New York |
| Crooks Farm | Rhode Island Red | 316 | 346.50 | Rhode Island |
| E. B. Parmenter | Rhode Island Red | 322 | 342.20 | California |
| Bagby Poultry Farm | Rhode Island Red | 320 | 340.50 | Arizona |
| George A. Pearce | New Hampshire | 327 | 338.35 | Hunterdon, N. J. |
| W. A. Downs | White Leghorn | 311 | 332.25 | Michigan |
| W. A. Seidel | White Leghorn | 309 | 329.80 | Florida |
| Foreman Poultry Farm | White Leghorn | 317 | 324.55 | Oklahoma |
| Crooks Farm | Rhode Island Red | 291 | 314.15 | Long Island |

## Twenty High White Leghorn Pens for the Year

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Babcock's Hatchery | 3839 | 3940.40 | Pennsylvania |
| Holser's Valley Farm | 3632 | 3891.45 | Storrs |
| J. A. Hanson | 3526 | 3821.85 | Western New York |
| Foreman Poultry Farm | 3538 | 3816.60 | Missouri |
| Kauder's Pedigreed Leghorns | 3529 | 3781.60 | Storrs |
| J. A. Hanson | 3589 | 3776.50 | Georgia |
| Kauder's Pedigreed Leghorns | 3438 | 3743.65 | Texas |
| George M. Anthony | 3536 | 3693.35 | Pennsylvania |
| J. A. Hanson | 3458 | 3691.70 | Pennsylvania |
| Babcock's Hatchery | 3618 | 3664.45 | Georgia |
| Foreman Poultry Farm | 3614 | 3660.15 | Maine |
| Kauder's Pedigreed Leghorns | 3379 | 3659.55 | Pennsylvania |
| Foreman Poultry Farm | 3459 | 3642.65 | Storrs |
| Kauder's Pedigreed Leghorns | 3364 | 3638.20 | Western New York |
| J. A. Hanson | 3459 | 3636.50 | Storrs |
| Holser's Valley Farm | 3554 | 3632.80 | Passaic, N. J. |
| Rapp's Poultry Farm | 3369 | 3601.35 | Hunterdon, N. J. |
| Nelson Leghorn Breeding Farm | 3421 | 3598.55 | California |
| Kauder's Pedigreed Leghorns | 3348 | 3578.40 | Storrs |
| W. A. Seidel | 3361 | 3569.35 | Texas |

## Twenty High Rhode Island Red Pens for the Year

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Crooks Farm | 3836 | 4089.70 | Pennsylvania |
| Hillview Poultry Farm | 3831 | 3970.70 | California |
| W. H. Wilson | 3677 | 3924.80 | Georgia |
| Harco Orchards | 3559 | 3861.20 | Rhode Island |
| To-Lani Farm | 3630 | 3794.55 | Georgia |
| Thomas H. Mettler | 3812 | 3778.70 | Storrs |
| Crooks Farm | 3548 | 3775.85 | Storrs |
| G. B. Treadwell | 3562 | 3740.45 | Maine |
| E. B. Parmenter | 3432 | 3660.60 | California |
| Peckham Farm | 3376 | 3597.60 | Rhode Island |
| C. C. Hersey | 3422 | 3586.45 | Storrs |
| Thomas H. Mettler | 3560 | 3580.95 | Storrs |
| G. B. Treadwell | 3415 | 3534.60 | Storrs |
| Ford's Riverbank Farm | 3353 | 3516.65 | Storrs |
| E. B. Parmenter | 3318 | 3502.05 | Pennsylvania |
| Crooks Farm | 3236 | 3497.20 | Rhode Island |
| J. J. Warren | 3227 | 3461.65 | Maine |
| J. J. Warren | 3212 | 3456.45 | Rhode Island |
| J. J. Warren | 3251 | 3451.95 | Storrs |
| W. H. Wilson | 3303 | 3449.10 | Georgia |

## Twenty High New Hampshire Pens for the Year

| Owner | Eggs | Points | Test |
|---|---|---|---|
| George A. Pearce | 3418 | 3609.35 | Hunterdon, N. J. |
| Joachim Breeding Farm | 3358 | 3568.70 | Storrs |
| Joachim Breeding Farm | 3133 | 3317.55 | Hunterdon, N. J. |
| George A. Pearce | 3135 | 3293.75 | Storrs |
| Ebenwood Farm | 3063 | 3255.05 | Storrs |
| Hubbard Farms | 3135 | 3240.90 | Georgia |
| H. S. and M. E. Twichell | 3012 | 3234.25 | Western New York |
| Ebenwood Farm | 2972 | 3192.50 | Rhode Island |
| Joachim Breeding Farm | 3073 | 3178.25 | Pennsylvania |
| Hubbard Breeding Farm | 3039 | 3152.60 | Pennsylvania |
| Del Rio Farm | 2949 | 3143.25 | Arizona |
| Howard Breeding Farm | 2933 | 3135.10 | California |
| Hubbard Farms | 2981 | 3121.85 | Western New York |
| James H. Horne | 2908 | 3090.80 | Storrs |
| W. G. Ashley | 2896 | 3086.80 | Arizona |
| Fairport Hatchery | 2968 | 3064.85 | Western New York |
| Pine Mountain Valley Farms | 2960 | 3049.50 | Georgia |
| Forest Hill Poultry Farm | 2885 | 3021.40 | Storrs |
| Crescent Farm | 2844 | 3017.90 | Florida |
| Howard Breeding Farm | 2843 | 3015.80 | California |

## Twenty High Barred Plymouth Rock Pens for the Year

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Dryden Poultry Farm | 3633 | 3706.75 | Pennsylvania |
| Dryden Poultry Farm | 3403 | 3522.20 | Storrs |
| Dryden Poultry Farm | 3389 | 3521.55 | Storrs |
| Norman Amidon | 3295 | 3403.60 | Maine |
| Dryden Poultry Farm | 3239 | 3312.00 | California |
| A. J. Urquhart | 3185 | 3261.50 | Maine |
| Harco Orchards | 3061 | 3235.40 | Storrs |
| Harco Orchards | 3295 | 3229.25 | Maine |
| Park's Barred Rock Farm | 3039 | 3178.65 | Pennsylvania |
| Fisher Orchards | 2960 | 3172.75 | Pennsylvania |
| Harco Orchards | 2979 | 3158.55 | Rhode Island |
| David T. Cohen | 2995 | 3156.55 | Storrs |
| A. J. Urquhart | 2927 | 3147.20 | Rhode Island |
| A. J. Urquhart | 3040 | 3126.50 | Passaic, N. J. |
| J. W. Schaible | 3115 | 3118.65 | Hunterdon, N. J. |
| Peachblow Farm | 3006 | 3104.80 | Maine |
| A. J. Urquhart | 2981 | 3101.35 | Storrs |
| Penn's Poultry Breeding Farm | 3015 | 3082.85 | Texas |
| Mark and Neal Witmer | 2966 | 3061.65 | Pennsylvania |
| P. R. McCormack | 2908 | 3053.60 | Texas |

## Twenty High White Plymouth Rock Pens for the Year

| Owner | Eggs | Points | Test |
|---|---|---|---|
| Riley Poultry Farm | 3284 | 3353.35 | Storrs |
| Ralph DeYoung | 3076 | 3215.40 | Maine |
| Four Winds Farm | 2964 | 3102.15 | Michigan |
| Missouri Valley Hatchery | 3022 | 3095.90 | Georgia |
| Bagby Poultry Farm | 2863 | 3054.35 | Texas |
| Missouri Valley Poultry Farm | 2814 | 2995.95 | Texas |
| Riley Poultry Farm | 2835 | 2877.50 | Georgia |
| Albert C. Lawton | 2693 | 2831.90 | Storrs |
| Carter-Dunham | 2611 | 2803.15 | Texas |
| Holtzapple Poultry Farm | 2636 | 2755.85 | Pennsylvania |
| St. Paul Hatchery | 2651 | 2745.95 | Florida |
| St. Paul Hatchery | 2614 | 2742.35 | Michigan |
| Carter-Dunham | 2562 | 2742.10 | Georgia |
| Inspiration Acres | 2797 | 2717.85 | Florida |
| Riley Poultry Farm | 2617 | 2680.10 | Michigan |
| The Superior Hatchery | 2567 | 2663.90 | Texas |
| Imperial Breeding Farm | 2656 | 2636.20 | Storrs |
| Knepley Hatchery | 2596 | 2630.70 | Oklahoma |
| Kerr Chickeries | 2524 | 2612.30 | Maine |
| Booth Farms and Hatchery | 2494 | 2609.35 | Texas |

## Average Production and Mortality, Each Test, for the Year

| Test | No. Birds in Test | Eggs Per Bird to Date | Points Per Bird to Date | Egg Wt. in Ounces Per Doz. | Per Cent Mortality for Sept. | Per Cent Mortality to Date |
|---|---|---|---|---|---|---|
| Arizona | 390 | 213.63 | 223.86 | 24.94 | 1.02 | 15.90 |
| Storrs | 1,352 | 213.86 | 222.55 | 24.80 | 1.55 | 16.57 |
| Pennsylvania | 1,105 | 213.20 | 220.96 | 24.72 | .55 | 16.57 |
| California | 598 | 213.73 | 220.64 | 24.62 | 1.17 | 16.73 |
| Hunterdon, N. J. | 624 | 211.66 | 219.19 | 24.70 | 1.61 | 15.71 |
| Rhode Island | 611 | 202.43 | 214.69 | 25.20 | .96 | 19.15 |
| Georgia | 1,326 | 207.74 | 213.61 | 24.56 | 1.89 | 19.39 |
| Western New York | 975 | 198.55 | 211.77 | 25.32 | 2.15 | 16.21 |
| Florida | 1,118 | 200.54 | 207.67 | 24.70 | 1.25 | 16.55 |
| Texas | 1,456 | 197.33 | 205.54 | 24.82 | 1.51 | 20.06 |
| Passaic, N. J. | 871 | 198.63 | 205.43 | 24.68 | 1.04 | 19.87 |
| Maine | 988 | 195.24 | 199.45 | 24.42 | 1.21 | 16.40 |
| Missouri | 780 | 181.41 | 193.47 | 25.32 | 1.41 | 19.88 |
| Central New York | 1,066 | 188.88 | 187.68 | 24.86 | 2.16 | 19.24 |
| Oklahoma | 650 | 181.61 | 183.02 | 24.14 | 3.39 | 19.70 |
| Michigan | 871 | 175.81 | 178.94 | 24.34 | 1.49 | 23.77 |
| Long Island | 1,092 | 174.75 | 176.58 | 24.20 | 1.10 | 19.24 |
| All Tests | 15,873 | 198.17 | 205.00 | 24.72 | 1.49 | 18.29 |

## Ten High Pens, Championship Class (26 Birds), California Laying Test, Oct. 1, 1941 to Sept. 22, 1942

| Owner | Breed | Birds Alive | Market Value of eggs | Feed Cost | Income over Feed Cost | Gain in Meat Value | Net Income |
|---|---|---|---|---|---|---|---|
| | | | Dollars | Dollars | Dollars | Dollars | Dollars |
| Hillview Poultry Farm | R.I.R. | 25 | 188.40 | 78.75 | 109.65 | 6.76 | 116.41 |
| Nelson Leg. Breed. Farm | W.L. | 26 | 170.26 | 76.89 | 93.37 | 8.93 | 102.30 |
| Buttes Poultry Breed. Fm. | W.L. | 26 | 166.06 | 74.82 | 91.24 | 8.70 | 99.94 |
| J. J. Warren | R.I.R. | 24 | 165.40 | 72.91 | 92.49 | 4.13 | 96.62 |
| Calif. Polytechnic Students | W.L. | 24 | 159.29 | 68.09 | 91.20 | 4.90 | 96.10 |
| Thomas H. Mettler | R.I.R. | 25 | 160.35 | 78.74 | 81.61 | 9.80 | 91.41 |
| Dryden Poultry Breed. Fm. | W.L. | 23 | 155.02 | 71.45 | 83.57 | 5.83 | 89.40 |
| E. B. Parmenter | R.I.R. | 22 | 166.09 | 78.85 | 87.24 | 1.12 | 88.36 |
| Donsing Breeding Farm | W.L. | 22 | 149.41 | 67.83 | 81.58 | 4.72 | 86.30 |
| Howard Breeding Farm | W.L. | 20 | 149.92 | 67.65 | 82.27 | 2.77 | 85.04 |

## Hens Earning 320 or More Points Each for the Year

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Harco Orchards | Rhode Island Red | 338 | 371.55 | Maine |
| Crooks Farm | Rhode Island Red | 340 | 363.05 | Storrs |
| Crooks Farm | Rhode Island Red | 331 | 361.50 | Pennsylvania |
| E. B. Parmenter | Rhode Island Red | 332 | 360.95 | Maine |
| Crooks Farm | Rhode Island Red | 336 | 359.35 | Pennsylvania |
| Alampi Poultry Farm | Rhode Island Red | 327 | 359.10 | Passaic, N. J. |
| C. C. Hersey | Rhode Island Red | 324 | 355.80 | Storrs |
| Crooks Farm | Rhode Island Red | 322 | 352.40 | Pennsylvania |
| G. B. Treadwell | Rhode Island Red | 322 | 352.30 | Maine |
| G. B. Treadwell | Rhode Island Red | 339 | 351.45 | Storrs |
| E. B. Parmenter | Rhode Island Red | 322 | 347.50 | Storrs |
| E. B. Parmenter | Rhode Island Red | 319 | 346.95 | Western New York |
| E. B. Parmenter | Rhode Island Red | 321 | 346.65 | Storrs |
| Crooks Farm | Rhode Island Red | 316 | 346.50 | Rhode Island |
| Ford's Riverbank Farm | Rhode Island Red | 331 | 346.10 | Maine |
| Robert C. Cobb | Rhode Island Red | 322 | 345.10 | Storrs |
| J. J. Warren | Rhode Island Red | 317 | 344.20 | Rhode Island |
| Alampi Poultry Farm | Rhode Island Red | 313 | 343.95 | Passaic, N. J. |
| J. J. Warren | Rhode Island Red | 321 | 343.35 | Maine |
| Alampi Poultry Farm | Rhode Island Red | 317 | 343.00 | Passaic, N. J. |
| W. H. Wilson | Rhode Island Red | 314 | 342.25 | Georgia |
| E. B. Parmenter | Rhode Island Red | 322 | 342.20 | California |
| G. B. Treadwell | Rhode Island Red | 315 | 341.95 | Rhode Island |
| Crooks Farm | Rhode Island Red | 317 | 340.70 | Storrs |
| Bagby Poultry Farm | Rhode Island Red | 320 | 340.50 | Arizona |
| Harco Orchards | Rhode Island Red | 317 | 340.45 | Maine |
| Crooks Farm | Rhode Island Red | 339 | 339.85 | Storrs |
| J. J. Warren | Rhode Island Red | 309 | 339.75 | Storrs |
| Crooks Farm | Rhode Island Red | 318 | 339.25 | Pennsylvania |
| Crooks Farm | Rhode Island Red | 315 | 339.05 | Rhode Island |
| Redbird Farm | Rhode Island Red | 320 | 338.75 | Rhode Island |
| E. B. Parmenter | Rhode Island Red | 315 | 338.30 | California |
| Hillview Poultry Farm | Rhode Island Red | 320 | 335.80 | California |
| Harco Orchards | Rhode Island Red | 307 | 335.70 | Rhode Island |
| Crooks Farm | Rhode Island Red | 314 | 335.35 | Pennsylvania |
| Crooks Farm | Rhode Island Red | 331 | 335.20 | Storrs |
| Harco Orchards | Rhode Island Red | 308 | 335.10 | Storrs |
| Crooks Farm | Rhode Island Red | 307 | 334.85 | Pennsylvania |
| G. B. Treadwell | Rhode Island Red | 330 | 334.60 | Storrs |
| Crooks Farm | Rhode Island Red | 310 | 334.60 | Pennsylvania |
| E. B. Parmenter | Rhode Island Red | 322 | 334.15 | Passaic, N. J. |
| Amron Farm | Rhode Island Red | 314 | 334.15 | Rhode Island |
| Ralph E. Hall | Rhode Island Red | 306 | 334.10 | Rhode Island |
| G. B. Treadwell | Rhode Island Red | 310 | 333.90 | Storrs |
| Crooks Farm | Rhode Island Red | 308 | 333.80 | Rhode Island |
| C. C. Hersey | Rhode Island Red | 319 | 333.30 | Storrs |
| David T. Cohen | Rhode Island Red | 319 | 332.90 | Georgia |
| J. J. Warren | Rhode Island Red | 315 | 332.90 | California |
| Alampi Poultry Farm | Rhode Island Red | 319 | 332.10 | Passaic, N. J. |
| Amron Farm | Rhode Island Red | 305 | 332.05 | Rhode Island |
| E. B. Parmenter | Rhode Island Red | 338 | 331.90 | California |
| E. B. Parmenter | Rhode Island Red | 317 | 331.85 | Rhode Island |
| Eugley's Poultry Plant | Rhode Island Red | 311 | 331.85 | Maine |
| Thomas H. Metler | Rhode Island Red | 317 | 331.45 | Storrs |
| Ford's Riverbank Farm | Rhode Island Red | 318 | 331.25 | Maine |
| Harco Orchards | Rhode Island Red | 306 | 330.90 | Storrs |
| G. B. Treadwell | Rhode Island Red | 306 | 330.90 | Storrs |
| H. J. Pruiksma & Son | Rhode Island Red | 321 | 330.80 | Passaic, N. J. |
| Harco Orchards | Rhode Island Red | 301 | 330.70 | Rhode Island |
| Babcock's Hatchery | Rhode Island Red | 312 | 330.30 | Rhode Island |
| E. B. Parmenter | Rhode Island Red | 311 | 330.15 | Rhode Island |
| E. B. Parmenter | Rhode Island Red | 303 | 329.95 | Passaic, N. J. |
| E. B. Parmenter | Rhode Island Red | 301 | 329.80 | Passaic, N. J. |
| Superior Hatchery | Rhode Island Red | 304 | 329.20 | Georgia |
| George A. Pearce | Rhode Island Red | 309 | 329.05 | Passaic, N. J. |
| G. B. Treadwell | Rhode Island Red | 303 | 329.00 | Maine |
| Thomas H. Mettler | Rhode Island Red | 304 | 328.90 | Passaic, N. J. |
| Thomas H. Mettler | Rhode Island Red | 307 | 328.50 | Storrs |

**(Continued on page following)**

## Hens Earning 320 or More Points Each for the Year

(Continued from preceding page)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Thomas H. Mettler | Rhode Island Red | 306 | 328.15 | Storrs |
| J. J. Warren | Rhode Island Red | 299 | 327.50 | Missouri |
| R. E. & F. H. Kendrick | Rhode Island Red | 301 | 327.45 | Rhode Island |
| Babcock's Hatchery | Rhode Island Red | 299 | 327.35 | Rhode Island |
| Louis D. Schaible | Rhode Island Red | 305 | 327.30 | Passaic, N. J. |
| Ford's Riverbank Farm | Rhode Island Red | 305 | 327.00 | Storrs |
| Harco Orchards | Rhode Island Red | 310 | 326.90 | Storrs |
| Fairport Hatchery | Rhode Island Red | 297 | 326.70 | Western New York |
| J. J. Warren | Rhode Island Red | 305 | 326.40 | California |
| Aseltine Poultry Farm | Rhode Island Red | 314 | 326.30 | Michigan |
| David T. Cohen | Rhode Island Red | 299 | 326.05 | Georgia |
| Crooks Farm | Rhode Island Red | 318 | 326.00 | Pennsylvania |
| G. B. Treadwell | Rhode Island Red | 301 | 325.80 | Maine |
| E. B. Parmenter | Rhode Island Red | 317 | 325.75 | Pennsylvania |
| Redbird Farm | Rhode Island Red | 303 | 325.70 | Pennsylvania |
| Crooks Farm | Rhode Island Red | 320 | 325.55 | Storrs |
| Ralph E. Hall | Rhode Island Red | 305 | 325.10 | Rhode Island |
| C. C. Hersey | Rhode Island Red | 300 | 324.95 | Storrs |
| Ralph W. Anderson | Rhode Island Red | 298 | 324.85 | Rhode Island |
| Harco Orchards | Rhode Island Red | 296 | 324.60 | Rhode Island |
| Harco Orchards | Rhode Island Red | 302 | 324.40 | Rhode Island |
| George A. Pearce | Rhode Island Red | 297 | 324.15 | Passaic, N. J. |
| Edgar Smith | Rhode Island Red | 306 | 324.10 | Maine |
| R. E. & F. H. Kendrick | Rhode Island Red | 304 | 324.05 | Maine |
| McBeth Hatchery | Rhode Island Red | 311 | 323.95 | Texas |
| W. H. Wilson | Rhode Island Red | 315 | 323.70 | Georgia |
| Hillview Poultry Farm | Rhode Island Red | 304 | 323.65 | California |
| To-Lani Farm | Rhode Island Red | 309 | 323.55 | Georgia |
| Hillview Poultry Farm | Rhode Island Red | 295 | 323.50 | California |
| Leslie D. Bartholomew | Rhode Island Red | 311 | 323.40 | Storrs |
| J. J. Warren | Rhode Island Red | 300 | 323.25 | Western New York |
| Crandon Farm | Rhode Island Red | 322 | 323.20 | Rhode Island |
| C. C. Hersey | Rhode Island Red | 308 | 323.15 | Storrs |
| George A. Pearce | Rhode Island Red | 308 | 323.15 | Hunterdon, N. J. |
| Crooks Farm | Rhode Island Red | 296 | 322.95 | Western New York |
| To-Lani Farm | Rhode Island Red | 298 | 322.65 | Georgia |
| E. B. Parmenter | Rhode Island Red | 304 | 322.60 | Storrs |
| Robert C. Cobb | Rhode Island Red | 303 | 322.55 | Western New York |
| W. H. Wilson | Rhode Island Red | 301 | 322.35 | Georgia |
| E. B. Parmenter | Rhode Island Red | 317 | 322.15 | Pennsylvania |
| Ford's Riverbank Farm | Rhode Island Red | 318 | 322.05 | Michigan |
| J. V. N. Stults | Rhode Island Red | 297 | 322.05 | Storrs |
| G. B. Treadwell | Rhode Island Red | 304 | 321.95 | Maine |
| To-Lani Farm | Rhode Island Red | 299 | 321.75 | Georgia |
| Alampi Poultry Farm | Rhode Island Red | 301 | 320.95 | Passaic, N. J. |
| Amron Farm | Rhode Island Red | 294 | 320.95 | Rhode Island |
| Hillview Poultry Farm | Rhode Island Red | 314 | 320.90 | California |
| Hillview Poultry Farm | Rhode Island Red | 301 | 320.70 | California |
| R. E. Jones | Rhode Island Red | 317 | 320.65 | Maine |
| Ford's Riverbank Farm | Rhode Island Red | 314 | 320.50 | Storrs |
| J. J. Warren | Rhode Island Red | 292 | 320.40 | Western New York |
| E. B. Parmenter | Rhode Island Red | 294 | 320.30 | Maine |
| W. H. Wilson | Rhode Island Red | 304 | 320.25 | Georgia |
| J. J. Warren | Rhode Island Red | 302 | 320.25 | Storrs |
| Greenlawn Poultry Farm | Rhode Island Red | 295 | 320.05 | Hunterdon, N. J. |
| J. A. Hanson | White Leghorn | 347 | 368.15 | Storrs |
| Foreman Poultry Farm | White Leghorn | 342 | 362.95 | Missouri |
| J. A. Hanson | White Leghorn | 336 | 355.70 | Western New York |
| Kauder's Pedigreed Leghorns | White Leghorn | 333 | 353.20 | Georgia |
| Charles D. Deisher | White Leghorn | 331 | 351.55 | Texas |
| Foreman Poultry Farm | White Leghorn | 326 | 351.00 | Missouri |
| Babcock's Hatchery | White Leghorn | 338 | 349.00 | Pennsylvania |
| Bridges Poultry Farm | White Leghorn | 335 | 347.95 | Georgia |
| Foreman Poultry Farm | White Leghorn | 318 | 347.65 | Missouri |
| Foreman Poultry Farm | White Leghorn | 317 | 347.55 | Central New York |
| Foreman Poultry Farm | White Leghorn | 329 | 346.55 | Missouri |

(Continued on page following)

## Hens Earning 320 or More Points Each for the Year

(Continued from preceding page)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 325 | 345.80 | Storrs |
| Holser's Valley Farm | White Leghorn | 317 | 345.75 | Georgia |
| Guy A. Leader | White Leghorn | 333 | 344.95 | Pennsylvania |
| J. A. Hanson | White Leghorn | 311 | 344.50 | Georgia |
| W. A. Seidel | White Leghorn | 319 | 344.05 | Texas |
| J. A. Hanson | White Leghorn | 316 | 344.00 | Rhode Island |
| Kauder's Pedigreed Leghorns | White Leghorn | 322 | 343.10 | Storrs |
| Foreman Poultry Farm | White Leghorn | 316 | 342.25 | Storrs |
| Holser's Valley Farm | White Leghorn | 313 | 342.05 | Storrs |
| Foreman Poultry Farm | White Leghorn | 325 | 341.60 | Storrs |
| J. A. Hanson | White Leghorn | 316 | 341.00 | Western New York |
| Kauder's Pedigreed Leghorns | White Leghorn | 315 | 340.70 | Storrs |
| Gold Spot Hatchery | White Leghorn | 311 | 339.55 | Arizona |
| J. A. Hanson | White Leghorn | 318 | 339.20 | Rhode Island |
| Dayton Laybest Leghorn | White Leghorn | 323 | 338.75 | Central New York |
| W. A. Seidel | White Leghorn | 317 | 337.10 | Texas |
| J. A. Hanson | White Leghorn | 328 | 336.95 | Georgia |
| Babcock's Hatchery | White Leghorn | 313 | 336.90 | Pennsylvania |
| J. A. Hanson | White Leghorn | 308 | 336.80 | Storrs |
| McCoon Poultry Breed. Farm | White Leghorn | 310 | 336.55 | California |
| Holser's Valley Farm | White Leghorn | 314 | 336.30 | Georgia |
| J. A. Hanson | White Leghorn | 332 | 336.05 | Storrs |
| A. B. Gillam | White Leghorn | 311 | 336.00 | Georgia |
| J. A. Hanson | White Leghorn | 309 | 336.00 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 311 | 335.60 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 313 | 335.35 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 314 | 335.30 | Maine |
| Sponenbergh Poultry Farm | White Leghorn | 322 | 335.10 | Passaic, N. J. |
| Foreman Poultry Farm | White Leghorn | 323 | 334.90 | Storrs |
| Kauder's Pedigreed Leghorns | White Leghorn | 314 | 334.55 | Georgia |
| Holser's Valley Farm | White Leghorn | 311 | 334.20 | Storrs |
| The Rhodes Hatchery | White Leghorn | 312 | 334.15 | Georgia |
| Creighton Brothers | White Leghorn | 315 | 334.10 | Pennsylvania |
| Mosher Pedigreed Leg. Farm. | White Leghorn | 313 | 333.65 | Western New York |
| W. S. Hannah | White Leghorn | 308 | 333.65 | Western New York |
| Kauder's Pedigreed Leghorns | White Leghorn | 304 | 333.40 | Texas |
| Ralph Nicklin | White Leghorn | 311 | 333.25 | Western New York |
| Foreman Poultry Farm | White Leghorn | 307 | 332.90 | Storrs |
| A. B. Gillam | White Leghorn | 309 | 332.75 | Georgia |
| Dublin Poultry Farm | White Leghorn | 317 | 332.70 | Missouri |
| Howard Woodward | White Leghorn | 321 | 332.55 | Hunterdon, N. J. |
| Hollywood Poultry Farm | White Leghorn | 321 | 332.45 | Georgia |
| J. A. Hanson | White Leghorn | 303 | 332.35 | Storrs |
| W. A. Downs | White Leghorn | 311 | 332.25 | Michigan |
| Rapp's Poultry Farm | White Leghorn | 308 | 332.25 | Hunterdon, N. J. |
| Babcock's Hatchery | White Leghorn | 316 | 332.05 | Georgia |
| Dryden Poultry Breed. Farm | White Leghorn | 307 | 331.50 | Storrs |
| Holser's Valley Farm | White Leghorn | 317 | 331.40 | Storrs |
| Tom Cochran | White Leghorn | 304 | 331.35 | Texas |
| Foreman Poultry Farm | White Leghorn | 302 | 331.20 | Missouri |
| Roselawn Poultry Farm | White Leghorn | 311 | 331.10 | Storrs |
| J. A. Hanson | White Leghorn | 305 | 331.05 | Pennsylvania |
| Pearl Poultry Farm | White Leghorn | 323 | 330.50 | Pennsylvania |
| Rapp's Poultry Farm | White Leghorn | 304 | 330.50 | Hunterdon, N. J. |
| A. B. Gillam | White Leghorn | 311 | 330.45 | Georgia |
| Foreman Poultry Farm | White Leghorn | 303 | 330.15 | Missouri |
| Holser's Valley Farm | White Leghorn | 323 | 330.10 | Storrs |
| Rapp's Poultry Farm | White Leghorn | 317 | 330.10 | Passaic, N. J. |
| Mosher Pedigreed Leg. Farm | White Leghorn | 315 | 330.10 | Pennsylvania |
| Burr's Poultry Farm | White Leghorn | 321 | 329.85 | Pennsylvania |
| W. A. Seidel | White Leghorn | 309 | 329.80 | Florida |
| Orchard Hill Farms | White Leghorn | 312 | 329.20 | Western New York |
| W. A. Seidel | White Leghorn | 307 | 329.05 | Storrs |
| The Rhodes Hatchery | White Leghorn | 306 | 329.05 | Georgia |
| Booth Farms & Hatchery | White Leghorn | 324 | 328.90 | Pennsylvania |
| J. A. Hanson | White Leghorn | 307 | 328.90 | Storrs |
| Holser's Valley Farm | White Leghorn | 302 | 328.80 | Storrs |

(Continued on page following)

## Hens Earning 320 or More Points Each for the Year

(Continued from preceding page)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Kauder's Pedigreed Leghorns | White Leghorn | 302 | 328.35 | Georgia |
| Nelson Leghorn Breeding Farm | White Leghorn | 310 | 328.25 | California |
| Booth Farms & Hatchery | White Leghorn | 301 | 328.25 | Western New York |
| The Rhodes Hatchery | White Leghorn | 313 | 328.10 | Georgia |
| Guy A. Leader | White Leghorn | 306 | 327.95 | Storrs |
| Rush Poultry Fm. & Hatch. | White Leghorn | 299 | 327.85 | Texas |
| Burr's Poultry Farm | White Leghorn | 300 | 327.65 | Pennsylvania |
| Foreman Poultry Farm | White Leghorn | 314 | 327.50 | Central New York |
| Dryden Poultry Breed. Farm | White Leghorn | 311 | 327.20 | Storrs |
| George M. Heberer | White Leghorn | 313 | 327.15 | Texas |
| Booth Farms & Hatchery | White Leghorn | 303 | 327.10 | Pennsylvania |
| Nelson Leghorn Breeding Farm | White Leghorn | 300 | 327.05 | California |
| Baker Poultry Farm | White Leghorn | 304 | 326.80 | Central New York |
| Jos. H. Suppan | White Leghorn | 311 | 326.75 | Pennsylvania |
| W. A. Seidel | White Leghorn | 300 | 326.70 | Florida |
| Creighton Brothers | White Leghorn | 307 | 326.30 | Western New York |
| Rusk Poultry Fm. & Hatch. | White Leghorn | 299 | 326.30 | Texas |
| Jack O'Harrow | White Leghorn | 320 | 326.20 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 303 | 326.10 | Storrs |
| Creighton Brothers | White Leghorn | 306 | 326.00 | Central New York |
| Stouffer's Poultry Farm | White Leghorn | 309 | 325.95 | Texas |
| Lindstrom Poultry Farm | White Leghorn | 303 | 325.90 | Hunterdon, N. J. |
| Pinebreeze Farm | White Leghorn | 313 | 325.60 | Florida |
| A. B. Gillam | White Leghorn | 310 | 325.55 | Georgia |
| Rusk Poultry Farm | White Leghorn | 309 | 325.55 | Rhode Island |
| Lucas Poultry Farm | White Leghorn | 302 | 325.55 | Missouri |
| Booth Farms & Hatchery | White Leghorn | 313 | 325.40 | Georgia |
| Dembro Poultry Farm | White Leghorn | 312 | 325.25 | Hunterdon, N. J. |
| J. A. Hanson | White Leghorn | 301 | 325.20 | Western New York |
| Kauder's Pedigreed Leghorns | White Leghorn | 301 | 324.95 | Texas |
| Holser's Valley Farm | White Leghorn | 324 | 324.85 | Central New York |
| A. E. Guinn | White Leghorn | 318 | 324.85 | Georgia |
| Foreman Poultry Farm | White Leghorn | 312 | 324.75 | Rhode Island |
| Kauder's Pedigreed Leghorns | White Leghorn | 297 | 324.75 | Western New York |
| Foreman Poultry Farm | White Leghorn | 317 | 324.55 | Oklahoma |
| Babcock's Hatchery | White Leghorn | 308 | 324.30 | Pennsylvania |
| Bagby Poultry Farm | White Leghorn | 300 | 324.25 | Georgia |
| Jack O'Harrow | White Leghorn | 305 | 324.15 | Texas |
| Kauder's Pedigreed Leghorns | White Leghorn | 298 | 324.15 | Georgia |
| Holser's Valley Farm | White Leghorn | 309 | 324.10 | Pennsylvania |
| J. A. Hanson | White Leghorn | 300 | 324.10 | Pennsylvania |
| J. A. Hanson | White Leghorn | 322 | 324.00 | Georgia |
| George M. Heberer | White Leghorn | 297 | 323.95 | Texas |
| W. A. Seidel | White Leghorn | 309 | 323.90 | Texas |
| Dryden Poultry Breed. Farm | White Leghorn | 298 | 323.80 | California |
| Kauder's Pedigreed Leghorns | White Leghorn | 298 | 323.65 | Texas |
| Howard Brothers | White Leghorn | 295 | 323.30 | Georgia |
| J. A. Hanson | White Leghorn | 305 | 323.20 | Georgia |
| J. K. Bedell | White Leghorn | 305 | 323.20 | Florida |
| J. A. Hanson | White Leghorn | 312 | 323.15 | Pennsylvania |
| Holser's Valley Farm | White Leghorn | 301 | 323.15 | Georgia |
| Roselawn Poultry Farm | White Leghorn | 324 | 323.05 | Georgia |
| Foreman Poultry Farm | White Leghorn | 304 | 323.05 | Pennsylvania |
| J. A. Hanson | White Leghorn | 300 | 323.05 | Western New York |
| Foreman Poultry Farm | White Leghorn | 297 | 322.65 | Missouri |
| Kauder's Pedigreed Leghorns | White Leghorn | 295 | 322.65 | Georgia |
| Bodine Pedigreed Leghorns | White Leghorn | 297 | 322.60 | Central New York |
| Content Farm | White Leghorn | 300 | 322.40 | Central New York |
| Thomas Mettler | White Leghorn | 295 | 322.40 | Passaic, N. J. |
| Guy A. Leader | White Leghorn | 305 | 321.95 | Pennsylvania |
| Schaffner Poultry Fm. & Hat. | White Leghorn | 325 | 321.90 | Georgia |
| Del Rio Farm | White Leghorn | 296 | 321.80 | Arizona |
| Dayton Laybest Leghorn | White Leghorn | 309 | 321.75 | Central New York |
| Nelson's Leghorn Breed. Farm | White Leghorn | 297 | 321.65 | Arizona |
| W. A. Seidel | White Leghorn | 301 | 321.55 | Texas |
| Kerlin's Poultry Farm | White Leghorn | 308 | 321.35 | Pennsylvania |
| Rinker Poultry Farm | White Leghorn | 301 | 321.35 | Pennsylvania |

(Continued on page following)

## Hens Earning 320 or More Points Each for the Year

(Continued from preceding page)

| Owner | Breed | Eggs | Points | Test |
|---|---|---|---|---|
| Nelson Leghorn Breed. Farm | White Leghorn | 294 | 321.35 | California |
| R. A. Hopkinson | White Leghorn | 300 | 321.30 | Passaic, N. J. |
| W. A. Seidel | White Leghorn | 299 | 321.30 | Texas |
| Booth Farms & Hatchery | White Leghorn | 311 | 320.80 | Pennsylvania |
| Rapp's Poultry Farm | White Leghorn | 300 | 320.70 | Hunterdon, N. J. |
| W. A. Seidel | White Leghorn | 300 | 320.60 | Storrs |
| Booth Farm & Hatchery | White Leghorn | 300 | 320.40 | Arizona |
| Pearl Poultry Farm | White Leghorn | 293 | 320.40 | Western New York |
| J. A. Hanson | White Leghorn | 295 | 320.25 | Georgia |
| Joachim Breeding Farm | New Hampshire | 332 | 347.05 | Storrs |
| James H. Horne | New Hampshire | 311 | 339.75 | Storrs |
| George A. Pearce | New Hampshire | 327 | 338.35 | Hunterdon, N. J. |
| George A. Pearce | New Hampshire | 325 | 338.10 | Passaic, N. J. |
| Joachim Breeding Farm | New Hampshire | 326 | 331.50 | Storrs |
| Battles Farm | New Hampshire | 314 | 330.45 | Rhode Island |
| George A. Pearce | New Hampshire | 313 | 328.75 | Storrs |
| Pine Mountain Valley Fms. | New Hampshire | 310 | 327.40 | Georgia |
| Joachim Breeding Farm | New Hampshire | 309 | 326.55 | Hunterdon, N. J. |
| C. D. Cummings | New Hampshire | 319 | 326.30 | Georgia |
| Howard Breeding Farm | New Hampshire | 301 | 324.35 | California |
| Ebenwood Farm | New Hampshire | 310 | 322.50 | Storrs |
| James H. Horne | New Hampshire | 297 | 322.45 | Storrs |
| James H. Horne | New Hampshire | 297 | 322.10 | Storrs |
| Ebenwood Farm | New Hampshire | 296 | 321.05 | Rhode Island |
| Dryden Poultry Breed. Farm | Barred Rock | 313 | 342.20 | Storrs |
| Parks Barred Rock Farm | Barred Rock | 313 | 338.25 | Pennsylvania |
| Dryden Poultry Breed. Farm | Barred Rock | 328 | 335.20 | Pennsylvania |
| Dryden Poultry Breed. Farm | Barred Rock | 324 | 334.75 | Storrs |
| Booth Farms & Hatchery | Barred Rock | 322 | 331.45 | Georgia |
| Fisher Orchars | Barred Rock | 312 | 330.95 | Michigan |
| Dryden Poultry Breed. Farm | Barred Rock | 312 | 325.05 | California |
| Harco Orchards | Barred Rock | 297 | 324.10 | Storrs |
| Dryden Poultry Breed. Farm | Barred Rock | 297 | 322.90 | Storrs |
| Pine Top Poultry Farms | Barred Rock | 294 | 322.70 | Rhode Island |
| Robert C. Cobb | Barred Rock | 301 | 322.45 | Storrs |
| Harco Orchards | Barred Rock | 297 | 321.10 | Maine |
| Riley Poultry Farm | Barred Rock | 333 | 320.65 | Pennsylvania |
| Laclede Hatchery | Black Australorp | 301 | 328.40 | Missouri |
| Raymond S. Thomas | Ancona | 300 | 328.40 | Pennsylvania |
| G. W. Schottman | White Wyandotte | 293 | 321.05 | Missouri |

## All Time High Hen Score, Each Breed, in U. S. Standard Tests

| Owner | Breed | Year | Eggs | Points | Test |
|---|---|---|---|---|---|
| W. A. Seidel | White Leghorn | 1941 | 343 | 376.25 | Texas |
| Harco Orchards | Rhode Island Red | 1942 | 338 | 371.55 | Maine |
| Weber Duck Farm | Barred Rock | 1937 | 334 | 362.00 | Maine |
| Joachim Breeding Farm | New Hampshire | 1942 | 332 | 347.05 | Storrs |
| G. C. Murray | White Rock | 1933 | 307 | 333.35 | Texas |
| T. D. Brown | White Minorca | 1940 | 301 | 329.20 | Texas |
| Laclede Hatchery | Australorp | 1942 | 301 | 328.40 | Missouri |
| Raymond S. Thomas | Ancona | 1942 | 300 | 328.40 | Pennsylvania |
| G. W. Schottman | White Wyandotte | 1942 | 293 | 321.05 | Missouri |
| Iowa Master Breeders | Rose Comb R. I. Red | 1941 | 289 | 314.45 | Texas |
| Perry T. Kistler | Barred Rock Crossbred | 1935 | 295 | 308.55 | Pennsylvania |
| Imperial Breeding Farm | White Giant | 1942 | 286 | 297.05 | Maine |
| Imperial Breeding Farm | New Hampshire White | 1942 | 265 | 287.55 | Missouri |
| E. J. Covey | Black Minorca | 1937 | 278 | 294.95 | Texas |
| Superior Hatchery | Light Brahma | 1941 | 270 | 284.45 | Texas |
| S. E. Raymond | Lamona | 1941 | 265 | 282.80 | Storrs |
| Harry L. Philips | Columbian Rock | 1942 | 258 | 275.25 | Missouri |
| L. C. Gravlee | Silver Laced Wyandotte | 1933 | 250 | 271.20 | Alabama |
| Sunny Ridge Farm | Jersey Black Giant | 1933 | 244 | 266.80 | Rhode Island |
| Iowa Master Breeders | Buff Orpington | 1940 | 246 | 265.80 | Missouri |
| Harry L. Day | Exchequer Leghorn | 1934 | 265 | 261.55 | Florida |

(Continued on page following)

## All Time High Pen Score, Each Breed, in U. S. Standard Tests

(Continued from preceding page)

| Owner | Breed | Year | Eggs | Points | Test |
|---|---|---|---|---|---|
| Illinois Hatchery | Brown Leghorn | 1941 | 275 | 260.45 | Texas |
| Famous Poultry Farms | Leghorn Cross | 1940 | 250 | 257.65 | Georgia |
| Far-A-Way Farm | Buff Rock | 1933 | 239 | 254.00 | New York State |
| A. E. Hampton | Black Leghorn | 1931 | 262 | 253.35 | Hunterdon, N. J. |
| Ward's Poultry Farm | Buff Leghorn | 1933 | 241 | 247.90 | Oklahoma |
| Blue Ribbon Farm | Rhode Island White | 1939 | 225 | 247.75 | Texas |
| Lindstrom Poultry Farm | Buff Minorca | 1941 | 239 | 245.45 | Texas |
| Far-A-Way Farm | Buff Wyandotte | 1931 | 230 | 240.05 | Alabama |
| August D. Arnold | White Barnevelder | 1934 | 249 | 236.00 | Maine |
| John Imhof | Light Barnevelder | 1933 | 227 | 229.00 | Maine |
| S. H. Palmer | Columbian Wyandotte | 1932 | 231 | 224.00 | Florida |
| Edward Nowak | Buttercup | 1932 | 225 | 218.60 | Florida |
| Walter C. Dobe | Andalusian | 1934 | 202 | 218.00 | New York State |
| Skyland Farm | Houdan | 1931 | 204 | 215.55 | Passaic, N. J. |
| R. A. Padgett | Speckled Sussex | 1931 | 201 | 208.40 | Texas |
| Bestcroft | Silver Campine | 1936 | 195 | 203.05 | Hunterdon, N. J. |
| Capt. I. B. Clarke | Buff Australorp | 1936 | 205 | 201.25 | New York State |
| Holdenville Poultry Farm | Hamburg | 1933 | 225 | 192.85 | Oklahoma |
| F. G. Romance | Partridge Plymouth Rock | 1942 | 153 | 157.60 | Florida |

## All Time High Pen Score, Each Breed, in U. S. Standard Tests

| Owner | Breed | Year | Birds | Eggs | Points | Test |
|---|---|---|---|---|---|---|
| J. A. Hanson | White Leghorn | 1940 | 13 | 4041 | 4283.25 | Storrs |
| T. N. Wilcox | Barred Rock | 1941 | 13 | 3943 | 4222.95 | Georgia |
| Crooks Farm | Rhode Island Red | 1942 | 13 | 3836 | 4089.70 | Pennsylvania |
| Edward N. Larrabee | New Hampshire | 1938 | 13 | 3434 | 3685.30 | Storrs |
| Riley Poultry Farm | White Rock | 1942 | 13 | 3284 | 3353.35 | Storrs |
| Harvey E. Taylor | White Wyandotte | 1940 | 13 | 3203 | 3244.25 | Texas |
| Paul Hansen | Black Australorp | 1941 | 13 | 3110 | 3184.25 | California |
| Eriksens Ancona Yards | Ancona | 1938 | 13 | 3117 | 3022.00 | Storrs |
| T. D. Brown | White Minorca | 1942 | 13 | 2596 | 2741.35 | Texas |
| Imperial Breeding Farm | White Giant | 1941 | 13 | 2615 | 2700.55 | Maine |
| Iowa Master Breeders | Rose Comb R. I. Red | 1941 | 13 | 2514 | 2635.50 | Texas |
| Mrs. C. W. Reynolds | Columbian Rock | 1942 | 13 | 2590 | 2657.25 | Missouri |
| E. J. Covey | Black Minorca | 1941 | 13 | 2363 | 2483.35 | Texas |
| Raymond Murphy | Jersey White Giant | 1938 | 13 | 2271 | 2447.40 | Missouri |
| Imperial Breed. Farm | New Hampshire Wh. | 1942 | 13 | 2291 | 2440.80 | Missouri |
| Hall Brothers | Barred Rock Crossbred | 1937 | 10 | 2309 | 2406.75 | New York State |
| Superior Hatchery | Light Brahma | 1941 | 13 | 2216 | 2362.55 | Texas |
| Illinois Hatchery | Brown Leghorn | 1941 | 13 | 2222 | 2323.00 | Texas |
| Ward's Poultry Farm | Buff Leghorn | 1941 | 13 | 2292 | 2286.80 | Oklahoma |
| Mrs. Maggie Thornton | Buff Orpington | 1933 | 10 | 2085 | 2207.30 | Texas |
| S. E. Raymond | Lamona | 1939 | 13 | 2056 | 2190.50 | Storrs |
| Lindstrom Poultry Farm | Buff Minorca | 1941 | 13 | 2173 | 2144.60 | Texas |
| Donald C. Chandler | Silver Laced Wyan. | 1939 | 13 | 2121 | 2126.25 | Maine |
| Miami Chick Hatchery | Buff Rock | 1942 | 13 | 2108 | 2137.65 | Michigan |
| F. V. Dufresne | Jersey Black Giant | 1932 | 10 | 1887 | 2024.55 | Passaic, N. J. |
| A. E. Hampton | Black Leghorn | 1931 | 10 | 2093 | 1964.15 | Hunterdon, N. J. |
| Blue Ribbon Farms | Rhode Island White | 1936 | 10 | 2152 | 1962.85 | Texas |
| Famous Poultry Farms | Leghorn Cross | 1940 | 13 | 1854 | 1858.55 | Georgia |
| Harry L. Day | Exchequer Leghorn | 1934 | 10 | 1854 | 1835.80 | Florida |
| S. H. Palmer | Columbian Wyandotte | 1932 | 10 | 1840 | 1764.65 | Florida |
| Bestcroft | Silver Campine | 1936 | 10 | 1723 | 1744.40 | Hunterdon, N. J. |
| John Imhof | Light Barnevelder | 1933 | 10 | 1710 | 1680.00 | Maine |
| R. A. Padgett | Speckled Sussex | 1931 | 10 | 1602 | 1575.25 | Texas |
| Far-A-Way Farm | Buff Wyandotte | 1931 | 10 | 1638 | 1535.00 | Alabama |
| Capt. I. B. Clarke | Buff Australorp | 1937 | 10 | 1529 | 1502.80 | New York State |
| Skyland Farm | Houdan | 1931 | 10 | 1393 | 1448.30 | Passaic, N. J. |
| Holdenville Poultry Farm | Hamburg | 1933 | 10 | 1615 | 1442.00 | Oklahoma |
| F. G. Romance | Partridge Plymouth Rock | 1942 | 13 | 1464 | 1429.05 | Florida |
| Walter C. Dobe | Andalusian | 1935 | 10 | 1357 | 1424.15 | New York State |
| D. C. Giles | Buttercup | 1932 | 10 | 1393 | 1366.30 | Florida |
| August D. Arnold | White Barnevelder | 1934 | 10 | 750 | 703.00 | Maine |

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NATIONAL

POULTRY DIGEST

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Vol. 4, No. 48 December 15, 1942

# The 100 Per Cent Pullet Flock

By ROY E. JONES

University of Connecticut

*Reprinted from Everybodys Poultry Magazine*

THE all-out call from the Federal government for more eggs and poultry meat to help feed this nation and our allies places the responsibility of increased production on every member of the poultry industry.

It cannot be done by building new houses and buying new equipment as material and labor are not available, but it can be done by better use of the buildings and equipment that we now have. Radical changes have had to be made in all lines of effort, and radical changes will have to be made in the poultry industry, but these changes must produce more food and more profit.

Poultry production efficiency can be stepped up in several ways, but let us here consider the advantage of keeping 100 per cent pullets.

**1. Higher Egg Production**—Pullets lay more eggs than hens. In Connecticut, over a period of years, the average increased production in favor of pullets has been better than 50 eggs per birds per year. This 50 eggs is the profit from poultry keeping and a very important increase in the food supply. The table (p. 706) shows 10 years production from the Connecticut Home Egg Laying Contest averaging better than 100 flocks with more than 60,000 birds per year.

Everybodys Poultry Magazine Publishing Company, Inc., Hanover, Pa.
(Everybodys Poultry Magazine, January 1943.)

## Pullet and Hen Egg Production Compared

(Based upon Connecticut Home Laying Test Records)

| Year | Pullet Egg Production | Hen Egg Production | Difference in Eggs | Per cent Hens |
|---|---|---|---|---|
| 1931-32 | 177 | 134 | 43 | 32 |
| 1932-33 | 173 | 127 | 46 | 32 |
| 1933-34 | 178 | 130 | 48 | 30 |
| 1934-35 | 181 | 131 | 50 | 32 |
| 1935-36 | 181 | 135 | 46 | 25 |
| 1936-37 | 189 | 140 | 49 | 21 |
| 1937-38 | 194 | 145 | 49 | 18 |
| 1938-39 | 194 | 143 | 51 | 16 |
| 1939-40 | 197 | 141 | 56 | 17 |
| 1940-41 | 200 | 144 | 56 | 13 |

While both pullet production and hen production has been steadily increased, the difference between the two has also been increased. It will be noticed also that the percentage of hens has steadily decreased.

**2. Better Distribution of Egg Production** — Early-hatched pullets lay heavily during the late summer and fall, coming up in egg size sufficiently fast to produce standard eggs during October and November when egg prices are highest. These pullets should lay well through the year, and when 12 months of production has been completed and room must be found for the next lot of pullets, they can be transferred to laying shelters or barracks houses and will continue in production for two, three, or four months before they go into a molt and are finally sold for meat.

On many farms this system of management produces the highest daily egg collection of the year during the season when prices are high. Even though laying shelters or barracks houses are not available and the hens have to be sold while in production in the summer to make room for new pullets, the balance of profit is still decidedly in favor of 100 per cent pullets.

**3. Better Livability**—Many of our serious poultry diseases are not inherited, but rather are carried over each year from the old stock to the new by contact. Brooding a sufficient number of pullets to fill all laying houses and either disposing of old hens or moving them to other quarters before the pullets are housed prevents this carry-over of poultry diseases.

Poultrymen who have reared 100 per cent pullets and carried out this quarantine program to get rid of respiratory troubles, expecting to take a temporary loss because of what appeared to be a sacrifice sale of old stock, have found out much to their satisfaction that their pullets live better and they have made more money than they have ever made before. This recommendation does not present an objection to the breeder carrying over carefully selected hens as special breeding stock, but it does emphasize the necessity of making this selection extremely careful preferably on a trapnest and progeny test basis. While it is better to carry old hens than empty poultry houses, it is still better to carry early-hatched, well bred pullets.

**4. Higher Poultry Meat Production**—Keeping 100 per cent pullets requires rearing more pullet chicks. This may have to be done by purchasing sexed chicks or part of the flock, particularly the early pullets, as sexed chicks. If straight run chicks can be reared, it will save the cost of sexing, step up the total meat supply and, at present prices, the cockerels should pay a good profit.

Keeping 100 per cent pullets means disposing of all fowl each year. This, in itself, makes a decided increase in poultry meat sales. Furthermore, the fowl are sold when they are in good saleable condition. They are more in number, they weigh more in pounds, and they bring a higher price per pound, all of which spells profit. With present price relationships, the fowl will sell for enough money to pay for rearing new pullets. This applies particularly to the heavy breeds and, in many cases, may apply to Leghorns.

**5. More Efficient Use of Equipmen and Labor**—The efficient use of equipment can best be measured in terms of total cash sales per hen capacity per house or per farm. It is the maximum output from the equipment available that counts. Efficient labor can best be measured in terms of dollar sales per dollar labor costs. Laying houses must be as near full as possible and production must be high to obtain this efficiency.

In brooding chicks, more efficient use of equipment and labor can be obtained by having a large number of chicks of one age kept in flocks as large as may be consistent with good management. With running water and an efficient but simplified feeding schedule, it is actually possible to care for more chickens with less labor.

**6. Poultry Farm Accounts Support This Practice** — Poultry farm accounts set up with a complete inventory from the beginning to the end of the year and a record of all expenses and receipts, egg production, and mortality, have shown very definitely, over a period of years, that poultrymen simply cannot afford to keep old hens the second year except as carefully selected breeders. From the standpoint of egg and poultry meat production and dollars and cents profit, it pays to keep 100 per cent pullets.

*Stepping up the . . .*

# Production of Hatching Eggs

**By STEPHEN WALFORD**
Wallingford, Connecticut

*Condensed from Hatchery Tribune*

ONE of the greatest possible contributions toward the 200 million winter chick goal is high hatchability, and by that I mean individual flocks yielding 85 marketable chicks or more from each 100 eggs set, or plant averages of 80 per cent or better. With high hatches, fewer flocks are required, and these can be better selected and supervised. Contrariwise, poor hatchability diverts from the commercial egg markets many more eggs than are necessary to do the job.

Fertility has received all too little attention. Assuming that the males carry an inheritance worth transmitting to their offspring, they should be observed closely (particularly in the crossbred matings) to see that they are mechanically able to make successful matings. Short-backed Wyandottes have given deplorably poor fertility, and oversized males, besides bruising and tearing their consorts, have been known to miss their matings completely. Sharp beaks, claws, and spurs frequently drive females away from an uncompleted mating.

A mating should be successfully completed in from two to four seconds, or something should be done about it. Incidentally, the most effective matings are those immediately following the laying of an egg, when the oviduct is relatively free from egg-forming materials. Six to eight well-matured (over 6½-month-old) males per 100 females is usually sufficient for heavy breeds. Too many males drive the females to roost too early, and too few good males leave females squatting unnoticed. Better put in too many at the start, since the addition of a single male to an established pen is usually unsuccessful.

## Recommend Dubbing Males

"Dubbing" of males is gaining acceptance where the males are to be used in cold weather. Incidentally, dubbed males have less difficulty eating from hoppers with reels or grilles, and so tend to keep in better flesh and body condition.

Adequate rations are required for continued high hatchability. A close study of results from many supply flocks prompts me to urge the use of a good commercial breeder ration, fed according to the manufacturer's directions. By "good," we mean one put out by a reputable concern, with testing facilities to insure the quality of ingredients used.

The same studies support the use of an all-mash ration or other controlled system of feeding, particularly in view of the common tendency to overfeed hard grain in a misdirected effort to maintain body weight. All-mash feeding is particularly adapted to flocks in which some of the feeding work has to be delegated; although it has its disadvantages, it seems to solve more problems than it creates.

A high feed intake is also necessary for continued high hatchability. Heavy breed flocks in 60 per cent production should be eating the equivalent of 30 to 34 pounds of dry feed daily. If feed consumption lags, several stimulants have proven effective — artificial lights (12 to 13 hours of light), pelleted breeder mash, wet mashes, the use of milk in some form, or frequent light feeds. But the simpler the feeding program can be kept, the better.

## How to Handle Eggs

The handling of the eggs is an obstacle to successful hatches on which many winter-hatching-egg producers will stub their toes. Market eggs may stand fairly wide ranges of temperature, but hatching eggs do best at 50 to 60 degrees, with a floor of 45 degrees and a roof of 70 degrees. And the temperature should be taken (not guessed) at the level of the eggs.

If eggs are shipped or collected weekly, they should be held in a relatively moist place — 75 per cent humidity. To check up on yourself, compare before a candler or bright light a few fresh eggs, and a few eggs held for a week. If the "held" eggs show considerably more light spots in the shell, the place is too dry for best results.

Hatching eggs should be collected three times daily at any season, or four or more times in extremely cold or hot weather; they should be placed immediately in the desired temperature, and not cased until several hours later, when they have lost their body heat.

When eggs are held a week or less, there seems to be no advantage in turning them or in tilting the cases.

Enroute to the hatchery, the eggs should be handled gently and protected against the weather and against jolting. A thick layer of horse blankets under the eggs will absorb a lot of the sharp jolts that seem particularly harmful. Incidentally, even a couple of layers of newspaper as a lining for the egg cases give a remarkable amount of protection against chilling.

Poultry Dairy Publishing Co., Inc., Mount Morris, Ill.
(Hatchery Tribune, November 1942)

# Food Value of Plants on Poultry Range

By **FRED V. GRAU**
**Pennsylvania State College**

*Condensed from a Talk*

THE food value of growing plants to a poultryman does not mean nutritional value only, which it seems to imply. It is much more than that. Naturally, we want to know how nutritious a plant is, how much protein, calcium, and phosphorus is being furnished and how much vitamin A it contains. But before these nutritional elements, as determined by chemical analyses and feeding tests, can be made use of, the poultry has to eat the plant. Of primary importance then, even before we discuss nutritional value as such, is palatability. Dumb animals have the faculty of selecting the most palatable plants. No doubt palatability is associated with nutritional and mineral content in some way, but this is not true of all plants. Various substances are produced by some plants which render them distasteful to animals.

Sweet clover is about as nutritious as alfalfa, but most animals refuse the sweet clover because of the bitter taste imparted to it by the cumarin. A high fibre content in one grass will render it less palatable, even though the chemical analysis indicates that it contains the same nutritional value as another grass. Further than this, the poultryman wants a range that is palatable, not just in the spring, but all through the season. Succulence is a corollary of palatability and the two are closely associated.

## Determining Nutritional Value

"Nutritional value" is generally associated with the content of protein, minerals, and vitamins as determined by chemical analysis. Actually, nutritional value is the value of a certain feed to a particular animal and it is best measured in terms of "net energy values." Since the determination of "net energy values" is an expensive and long-drawn- out procedure, and may be quite different between individuals of the same breeding and between different classes of livestock, we will not use the term in its full sense. So far as I know, "net energy values" have not been widely applied to poultry feeds.

We will roughly measure nutritional value in terms of known analysis. Even so, we must not be too positive because it is well known that the nutritional value of a given plant, when grown alone, may be quite different from that of the same plant when it is grown in combination with another. In some cases, the nutritional value may be doubled as the result of the association.

A good example of this is orchard grass. Despised by many farmers because the cows won't eat it where it grows alone in the orchard, it is eagerly sought by animals when grown with alfalfa or Ladino clover, because it is richer in protein, minerals, and vitamins. Kentucky bluegrass grown alone is a poor feed compared to Kentucky bluegrass grown with white clover.

Nutritional value also is greatly affected by the fertility of the soil, by applications of lime and fertilizer, and by management practices. Analysis of pasture grasses shows that the protein content is nearly doubled when an abundance of phosphorus is applied to the soil. Limed and fertilized pasture grasses have significantly more calcium and phosphorus than the same grasses without treatment. Nutritional value drops quickly as grasses mature. The digestible protein in Kentucky bluegrass in seed is only half that when it is in a succulent closely-grazed condition. Thus it is plain to see that nutritional value is affected by several factors, most of which are ours to control as we will.

Next, the term "food value" implies "total food value" over an entire season. Carry that thought further and it can be extended to mean food value over a period of years from the original planting. By this I mean the life expectancy or longevity of a given plant on the range. Oats make fine range and they are both palatable and nutritious, but how long do they last when a flock of hungry birds start in to pick? By contrast, Kentucky bluegrass is both palatable and nutritious, and will last indefinitely, with good management.

**Value of common grasses and legumes for poultry range**

| Grasses | Resistance to wear | Rate of Recovery | Palatability | Nutritional Value | Carrying Capacity |
|---|---|---|---|---|---|
| Kentucky bluegrass | Good | Good | Good | Good | Good |
| Canada bluegrass | Good | Poor | Poor | Fair | Poor |
| Redtop | Good | Fair | Poor | Fair | Fair |
| Timothy | Good | Poor | Good | Good | Poor |
| Orchard grass | Good | Good | Fair | Good | Good |
| Meadow fescue | Good | Good | Fair | Good | Good |
| Red fescue | Good | Poor | Poor | Poor | Poor |
| Poa trivialis | Fair | Good | Good | Good | Fair |
| Perennial ryegrass | Good | Good | Good | Good | Good |
| Bent grass | Poor | Fair | Fair | Fair | Fair |
| Alfalfa | Fair | Good | Good | Good | Fair |
| Red clover | Poor | Fair | Fair | Good | Fair |
| Alsike clover | Poor | Fair | Fair | Good | Fair |
| White clover | Good | Good | Good | Good | Good |
| Ladino clover | Good | Good | Good | Good | Good |
| Lespedeza | Fair | Fair | Fair | Good | |
| Black medic | Good | Good | Good | Good | Good |
| Bird's-foot trefoil | Good | Fair | Good | Good | |

From, "The Food Value of Growing Plants on the Poultry Range"
Presented at Sixth Neppco Exposition. Harrisburg, Pa., Oct. 8, 1941

The difference in one season is as six weeks is to six months, or more. In this comparison, the total food value of Kentucky bluegrass is far greater than the total food value of young growing oats. In addition to this, long life on a poultry range implies resistance to wear and the ability to recover quickly after being closely grazed, clipped, or picked. Just recall those clumps of orchard grass in the lawn at home. Remember how they are inches higher than the other grasses? That is what I mean by quick recovery. Ladino clover also has this quality to a marked degree.

### Carrying Capacity and Yield

After palatability, nutritional value, and longevity comes "carrying capacity." Two plants which are both equally palatable, nutritious, and long-lived may be quite different in their ability to stand up under the punishment of a flock of hungry birds. The best comparison I can think of is between a good strain of native wild white clover and Ladino clover. The ability of the Ladino clover to recover quickly after it is grazed or clipped gives it a much higher carrying capacity rating than the smaller wild white clover. Carrying capacity also implies yield. Ladino clover will yield more than twice as much forage than wild white clover and thus, theoretically, it can carry twice as many birds to the acre.

It is important to use plants on the range which will last for years, because most poultrymen, in my experience, do not have the tools and the equipment to fit a piece of ground every year and sometimes twice each year for temporary crops. On the other hand, that practice is too expensive and it does not do the soil any good. On sloping land, there is always the danger of erosion. We are finding that with a good sod on the range we can range birds year after year with no ill effects, the soil stays in place and it gets better and better the longer it stays in sod. The longer a range sod can be kept before breaking it, the greater will be the total food value of that range for the money invested, other things being equal.

Among the range plants available, we look to the perennials for long life. Perennial because, under good range management, the grasses never produce seed. That rules out the annual grasses. Among the adapted common perennial grasses are Kentucky bluegrass, Canada bluegrass, redtop, timothy, orchard grass, meadow fescue, red fescue, rough-stalked bluegrass (poa trivialis), perennial ryegrass, and the bent grasses. Common adapted perennial legumes include alfalfa, red clover, alsike clover, white clover, Ladino clover, Lespedeza (in some sections), black medic, and bird's foot trefoil (Lotus).

The accompanying table indicates the relative values of the common adapted grasses and legumes for range purposes. Five headings are given, each of which contributes to total food value when used for range purposes. Each grass and legume is classified separately, but let me repeat that seldom are any of them used alone in actual practice. A mixture of grasses and legumes is always sown because we know that we increase food value by using the combination.

From the plants listed in the table, we can make up a theoretical mixture for a poultry range, using only plants which rate "good" three or more times out of five. The mixture would contain seeds of the following plants:

Kentucky bluegrass
timothy
x orchard grass
x meadow fescue
x poa trivialis
perennial ryegrass
alfalfa
white clover
Ladino clover
black medic
bird's-foot trefoil

That makes quite a mixture, so let's start eliminating.

The first two to come out are orchard grass and meadow fescue because they tend to form undesirable clumps when not properly managed. They would not do this if they were mowed frequently and were heavily grazed, but we cannot very well include them because there is bound to be some mismanagement.

The drought tolerance of these two grasses makes them valuable for furnishing green feed continuously throughout the season. They are generally regarded as coarse and unpalatable, but in combination with legumes and under good management, they can be kept in succulent condition. No one that I know of except turkey raisers has included them. Actually, they are the only two grasses that are compatable with and are strong enough to compete with Ladino clover. I can only hope that some one will be brave enough to resist crossing them out and will try them out in this combination.

Poa trivialis is next to come out, but not because we want it out. Hitler has done that for us. We cannot get the seed because it all came from the low countries. When seed is available again, we will put it back on the list.

### Nature Eliminates Many Varieties

We won't eliminate any of the legumes, but will plant our theoretical "maximum food value" mixture and see what nature does in the way of taking some of them out. We will use a good, well-drained soil with plenty of lime, to put calcium in our plants. We will use plenty of high phosphorus fertilizer, to put phosphorus in the plants. We will seed it in August so that there will be no weeds and so that it will be ready to be ranged the following spring.

There will be plenty of everything for the birds, but they will not pick all plants alike and soon the alfalfa will start blooming and the ryegrass will head out. Then we will get out the mower and clip the range because we do not want mature plants. They are high in fibre, low in protein, and are not succulent.

Let us see first how the legumes fare in this set-up. Clipping sets the alfalfa back and since it does not recover as fast as the Ladino clover, it will be partially smothered. With plenty of moisture, the Ladino will get too deep for the birds to wade through on a wet morning, so we get the mower out again. This time the alfalfa is clipped long before it can reach bloom stage so it now gets a severe setback. A few more clippings like this and it will not do much more than last out the season. Thus, alfalfa is naturally eliminated because Ladino ranges are clipped eight times and more a season. Alfalfa will not stand more than three or four cuttings.

What has happened to the little white clover? It just could not grow fast enough and tall enough to compete with Ladino clover so it was taken out of the picture early in the game. The black medic came along and was able to lift its head enough to survive for a while. It did best where the Ladino was thin in spots. The bird's-foot trefoil did not make the grade because it was slow to start and was too small when the Ladino started crowding. In the drier spots, however, it made a good showing because it is very drought tolerant.

Now the grasses. Let us see how they fared under the system of frequent clipping to produce a continual supply of succulent feed. Kentucky bluegrass could not make the grade. It takes two years to make a sod under favorable conditions and it cannot grow fast enough to compete with Ladino clover when conditions favor the Ladino. Timothy faded out in the first year because it is slow to recover and it got smothered. The ryegrass stayed one season and it left.

After the first year our theoretical "maximum food value" mixture has become almost pure Ladino clover. Perhaps there is a place in the mixture for orchard grass and meadow fescue because they will persist year after year under the conditions I have related which favor the Ladino clover.

### Value of Ladino Clover

Since Ladino clover seems to come out on top, let us examine it more closely for total food value under each heading.

**Resistance to wear** — Excellent. The creeping stems form a modified "wire floor" on the ground, which is extremely resistant to the traffic of birds.

**Longevity** — Very good. Under good management, with adequate supplies of minerals and moisture, it should last 10 to 12 years or more.

**Rapid recovery**—The best. Fields of Ladino clover that are cut closely for hay are green again in three days. The reason is that the stems which hug the ground and are never cut off have many buds. These buds burst forth when the leaves above are removed.

**Palatability (succulence)** — Excellent. Ladino clover is preferred by all livestock. It is about 80 per cent water as compared to 70 to 75 for most other forage plants.

**Nutritional value** — Has 20 to 22 per cent protein on the dry basis when in combination with orchard grass. Somewhat higher when grown alone. (25 to 30 per cent reported.)

**Calcium—Phosphorus**—High. It is rich in calcium and phosphorus where these minerals are supplied to the soil.

**Vitamins**—Rich. Analysis indicate 25 to 40 milligrams of carotene in 100 grams of freshly-dried material. This is several times the carotene content of most natural feeds.

**Carrying capacity**—Good Ladino ranges are carrying more than 500 birds to the acre throughout the season, except in extremely dry periods. No other legume can carry the large amount of livestock per acre as Ladino.

**Yield** — Mixtures containing Ladino clover have been measured over several years and the green weight yields average about 25 tons to the acre. This is equivalent to 5 tons or more of air-dry hay to the acre.

**Feed replacement value** — Mr. Peters says, "I use less than half the amount of mash for the same number of birds that my brother feeds. He has no range for his birds."

Barclay reports, "With 2,800 birds, I save $5.00 a day in my feed bill with good Ladino range."

I seem to have made a strong case for Ladino clover. My support comes not alone from our work but from poultrymen who are using Ladino on their farms. I do not mean to leave the impression that it is the only good poultry range which has a high food value. One of the best is a good Kentucky bluegrass-native white clover pasture which is well limed, fertilized, and managed. The nutritional value is as high as Ladino clover, but it will not support quite as large a population.

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IN PHILADELPHIA, Victor Boyola, backlot poultry raiser, aimed his gun at a cat sneaking up on his chickens, but instead of hitting the cat, the bullet struck a neighbor woman. His "poor marksmanship" drew a reprimand from the judge who also required him to sign a $500 bond to keep peace for a year.

## Facts About Eggs

1. Eggs are a natural protective food.
2. The egg is 100 per cent edible—no waste.
3. Eggs are an outstanding bargain package of good nutrition at any time.
4. White eggs and brown eggs are equally tasty and nutritious.
5. There is no difference in the value of a pale or deep colored yolk.
6. The yolk of the egg is one of the first solid foods added to milk in the infant's daily diet.
7. The superiority of the egg as an efficient food is a historical fact re-emphasized since the discovery of vitamins and modern nutrition.
8. Eggs possess the rare quality of combining low caloric value with high body building proteins and necessary regulating minerals and vitamins.
9. The yolk of the egg is one of the richest food sources of iron in an especially valuable form for the body.
10. Egg nutrition is so easy to digest that it is recommended for infants and convalescents and normal persons alike.
11. The natural vitamin, mineral, and protein content of two eggs provides from 6 to 32 per cent of the daily nutritional requirements with the supplemental foods.
12. Eggs are the sunshine food—the richest land-grown source of vitamin D—and giving it the most palatable form.
13. Egg yolk with other regular foods is sufficient to safeguard the baby against rickets in the winter months.
14. Every egg added to the daily diet means increased food value and health protection.
15. The egg is a vital part of a safe guide to eating, which gives a vigorous mind, a strong body, abundant health, and longer active health.
16. Eggs, like milk, meat, butter, are a perishable food, therefore, should be kept refrigerated until ready for use.
17. The delicate flavor of eggs should be protected from absorbing strong odors of other foods in the refrigerator.
18. There are over a thousand different ways to serve eggs.
19. Eggs combine easily and well with all other foods — cereals, dairy products, fats, fruits, vegetables, meats.
20. Cooking eggs and dishes in which eggs predominate at low temperature is one of the secrets of good cooking.
21. There is no difference between small and large eggs. Small eggs are laid by pullets (young hens). When the hen matures, the eggs achieve normal size.

—Release for consumers prepared by Kathryn B. Niles of the Poultry and Egg National Board.

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# Ceilings and the Labor Problem

### By SAMUEL L. ALTHOUSE

*Reprinted from the American Poultry Journal*

THE farm-labor problem goes deeper than freezing labor or temporary shifts back and forth to relieve shortages on seasonal crops. A thing like free human labor cannot be moved about artificially as readily as cattle or goods. It must be more natural.

We must face the issue, hastened by the war, whether America will continue to be a strong industrial and farming nation, or whether wartime moves like ceiling prices, relatively low wages for the food producers and subsidies will so weaken farming that it may never be able to fight back to something like equality with factory labor. England has favored factory labor, and now she is largely dependent on others for food.

### Too Wide a Gap

Most politicians have fallen into the rut of thinking of farming as a "way of life," with certain compensations over city life, rather than as labor or a business. They have decided there is no common ground on which farm and city labor can meet. As a result, there is a strong trend, which may be helped by ceiling prices, to favor the factory and pacify the farm with subsidy or crop control. They forget that the farmer must fight the elements, disease, the fact of distance to town, and the good things of modern life, as well as low prices to pay him for his labor, management and capital risk.

There are no compensations in farm life to make up for a difference in income of from 50 to 150 percentage points — and the gap between farm and factory workers is ever widening. Roughly, factory workers are now getting twice their cost of living, while farmers are getting just an even cost of living. Twenty-five per cent of the population (the farmers) get about 15 per cent of the national income.

But there is a solution, if we face it boldly.

### The System Works

When Secretary Wickard wanted more eggs and milk for lend-lease, he told producers they would get grain at a price that would show them a profit when fed to livestock. That was sound. He got the food.

When the Government wanted critical war materials like ships, guns, planes, they told the makers they

American Poultry Journal, 536 South Clark St., Chicago, Ill.
(American Poultry Journal, December 1942)

would get "cost plus." They might have said: "Pay anything you like for labor and we will still guarantee a profit for you." That was an error. They got the goods, but they widened the gap and drained off good farmers.

But since they set the standard, we can work back from there.

### Equality in Buying Power

If "food is ammunition" and will "win the war and write the peace," then the farm is the "food factory." The only way to hold labor—including the farmer—on the farm, is to pay him a wage that will put his labor on a close equality with city labor in purchasing power. Of course, this does not mean the same wages in dollars or hourly wage rate, but an over-all income that will give the food producer a buying power and standard of living about equal to the city worker.

### Higher or Lower Prices?

This can be done in two ways: (1) a gradual lowering of industrial wage rates (total income) to a closer relation with farm income—possibly by lengthening hours and cutting out overtime pay, or (2) a gradual raising of farm income to a point of closer equality in purchasing power. The important thing is not the number of dollars, but what the dollar will buy. Near-equality can be reached on either a higher or lower price level. We prefer lower prices adopted gradually.

In a controlled economy, this solution should be relatively easy if we are willing to forget politics to win the war, and the peace, on the home front.

### Weakness of Subsidy and Parity

Subsidies are unpopular with American farmers and are not the answer.

Parity—using the present formula—is not the answer. When parity was set up in 1933, farm labor was so low in price it was not included because of the fear of causing still lower farm prices. The average farmer admits he does not understand parity.

It seems to be the right time to declare for the equality of farm labor with factory labor, with prices under the ceiling that will show profits for the food producer and fair wages for hired help. Manpower troubles would solve themselves.

To speak of higher prices, would be to invite misunderstanding, but to establish and legislate the equality of the farmer as a laborer—without labor unions or subsidies—would be a step toward unity among all producers and away from disparity.

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¶¶ AMERICAN soldiers stationed in England had pork for their Thanksgiving dinner instead of turkey as originally planned. The turkey was donated to British hospitals.

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# WAR AND THE POULTRY RAISER

### 1943 Production Goals

Production goals for 1943, announced by Secretary of Agriculture Claude R. Wickard on November 30, call for the highest production in the history of American farming.

To help supplement the nation's meat supply, poultry producers are asked to produce 4 billion pounds of chicken and 560 million pounds of turkey to be consumed as meat—a 28 per cent increase in chicken and a 15 per cent increase in turkeys over estimated 1942 production.

Prices for chickens, not including broilers or chickens weighing less than 3 pounds live weight, and turkeys will be supported at 90 per cent of the parity price.

The 1943 egg goal calls for an increase of 8 per cent over 1942. Prices for eggs will be supported at a price for eggs purchased on an offer and acceptance basis equivalent to not less than 30 cents per dozen in the spring and early summer, and an annual average price of 34 cents per dozen, basis U. S. average farm price.

### Tightening Feed Situation

A new obstacle in the way of achieving 1943 egg and poultry production goals is the shortage of protein ingredients which had assumed serious proportions early in December.

The outbreak of war put a stop to the importation of meat products from New Zealand, Australia, and South America, and feed manufacturers on the east coast, in particular, turned to domestic sources of supply, also buying heavily of soybean oil meal.

With both poultry and hog numbers greatly increased, feed manufacturing tonnage has soared almost unbelievably, and the need for protein supplements has become greater. Early in December, some of the big feed mills in the Midwest were idle days at a time—unable to get the protein ingredients. Soybeans are more plentiful than ever, but the bottleneck is insufficient processing capacity.

To make larger supplies of soybean meal available to feeders in the Midwest and the Pacific Northwest, the Commodity Credit Corporation on December 8 barred the sale of soybean oil meal for shipment into certain sections of the East and South, except by specific authorization.

Deliveries on contracts of sale already made for shipment could be made, however, and soybean meal produced in processing plants located within the eastern and southern areas could be shipped. The idea is to get more raw soybeans shipped into the East and South for processing.

One area includes parts of Massachusetts, New Hampshire, Vermont, New York, Pennsylvania, Maryland and Delaware, and all of the states of New Jersey, Connecticut, and Rhode Island. The other area includes the states of North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Arkansas, Louisiana, Texas, and Oklahoma.

The eastern area includes the following named cities and is bounded by a line from Boston through Nashua, New Hampshire, to Keene, New Hampshire; Charlestown, New Hampshire; Arlington, Vermont; Schenectady, Cobleskill, Delhi, Hancock, New York; Carbondale, Scranton, Hazleton, Pottsville, Lancaster, Pennsylvania; Aberdeen, Chestertown, Maryland; and Georgetown, Delaware.

### Revision of Turkey Ceilings Covers Direct Sales

The Office of Price Administration on November 18 announced a revision of the turkey wholesale price ceilings to cover sales by farmers and processors direct to the consumer. A farmer may now charge the highest retail price prevailing in the town nearest him for live or dressed turkeys sold direct to the consumer, the highest retail price apparently being calculated by the schedule of markups in the original turkey wholesale price ceiling.

On mail order sales, the farmer or processor may charge the highest retail price in the nearest town and pass the shipping charges on to the consumer.

Under the revision it would appear that the producer who has succeeded in building up a market at premium prices would no longer be able to collect the premium. Much confusion still exists on the interpretation of the turkey price ceilings, and many points require clarification.

### McNutt Controls Manpower

President Roosevelt on December 5 placed over-all control of the nation's human resources in the War Manpower Commission headed by Paul McNutt. This includes control over Selective Service, hiring of workers, and the manning of plants, giving McNutt authority to decide where and in what occupation a worker is most urgently needed.

There is still some confusion in the interpretation of the action of the War Manpower Commission in "freezing" poultry, dairy, and livestock farm workers on October 27, the International Baby Chick Association pointing out that the order does not apply to hatchery employees, although hatchery operators were granted exemption considerations by the Selective Service on September 15.

### Farmers Can Apply for More Gasoline for Trucks

Many poultrymen have been disturbed by the cut in their gasoline mileage allowance by the ODT under its certificate of war necessity plan, many feeling that officials have little familiarity with the actual farm conditions and cannot appreciate the needs for gasoline for operation of trucks.

The Office of Defense Transportation on December 1, however, said that any farmer who is dissatisfied with the amount of mileage in gasoline allowed in his certificate of war necessity for his truck or trucks should take the matter up with his county agent, county war board, or his county farm transportation committee who, if convinced that any farmer should have been granted more mileage in gasoline, will make a recommendation to the ODT district manager serving the county in which the farmer lives. All ODT district managers have been instructed from Washington to accept such recommendations, unless they contain obvious errors.

### Wickard Is Food Administrator

President Roosevelt on December 7 named Secretary of Agriculture Claude R. Wickard Food Administrator, giving him the authority to "ascertain an determine the direct and indirect military, other governmental, civilian, and foreign requirements for food, both for human and animal consumption and for industrial uses."

As Food Administrator, Secretary Wickard will formulate the program necessary to insure an adequate food supply, allocate food for human and animal consumption, see that it is properly distributed, and make purchases for federal agencies.

One of the most pressing and immediate problems he has to solve is to insure an adequate supply of protein supplements for poultry and hog feeds. Many of the larger feed manufacturing concerns have had to reduce operations in recent weeks because of a lack of protein supplements. Chief bottleneck in the situation is the lack of facilities for processing the huge supply of soybeans into soybean oil meal, now the most important protein source. If the situation is not corrected in a few months, it will seriously threaten the production of eggs and poultry in 1943.

### Egg and Poultry Ceiling Announcement Delayed

The temporary ceiling prices on eggs and poultry due to expire on December 3 were extended indefinitely by the Office of Price Administration, pending announcement of permanent ceilings. Several dates have been indicated for the release of permanent ceilings, the latest being December 22.

Current information is that ceilings will be based on one grade of eggs, prices of grades above and below that seeking their own level.

### Exemptions from Ceilings on Sale of Dried Eggs to Government

Dried whole eggs sold to any federal agencies during January and February 1943 were exempt from price control by the Office of Price Administration on December 9.

A similar exemption from price control was made on sales of shell, liquid or frozen eggs to any manufacturer producing dried whole eggs for January and February 1943 delivery to government agencies. The move was designed to assure a supply of dried eggs for the armed forces of the United Nations.

Under the temporary price ceilings, a reduction in the volume of dried egg offering had occurred.

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## *Turkeys by Mail*

Ready for your oven and delivered to your door by parcel post or express! That's the new marketing formula for turkeys, developed this year by the Northwestern Turkey Growers Association—a plan that is being spark-plugged by order blanks and mouth-watering descriptions in the gift catalog of one of the large mail-order houses.

Turkeys by mail are intended only to supplement the regular marketing channels of this biggest turkey co-op. With many consumers restricted in their ability to shop around, however, there may be an increase in mail-order buying – and the turkey cooperators are not passing up any opportunities. The plan also has several wartime advantages, according to Herbert Byers, manager of the association.

"Instead of requiring wire-bound boxes, the mail order turkeys are packed in paper. Instead of including the head and feet, the transportation weight includes only the dressed bird. Quality is assured by Government inspection, grading, and certification."

The catalog turkeys are dressed at the co-op's Salt Lake City plant. Shipped by freight to distributing centers, they are individually wrapped and started to their final destinations with dry ice. They are intended to arrive in a frozen or semi-frozen condition, with complete directions to the housewife for final preparation.

—News for Farmer Cooperatives, November 1942.

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# Watch the Calcium Phosphorus Ratio

By **ROBERT QUAIT**

*Reprinted from Mineral Highlights*

TODAY, feed mixers, large and small, are faced with the necessity of reducing the amount of fish and animal proteins in their poultry feeds. As these proteins are being replaced by increasing the vegetable source proteins in the feed, some attention must be given to the altered mineral and vitamin balance effected by the substitution.

Meat and fish protein sources provide many times the mineral content of soybean and other high protein vegetable sources. For example, meat and bone scrap (50 per cent protein) will average about 10 per cent calcium and 5 per cent phosphorus while soybean meal will average less than 1 per cent of either mineral—usually about twice as much phosphorus as calcium.

Other feedstuffs of vegetable sources used in poultry mashes are even more deficient. This is illustrated by the table below showing the average percentage of calcium and phosphorus in some of the common feedstuffs.

| Feedstuffs | Per cent Calcium | Per cent Phosphorus |
|---|---|---|
| Corn | 0.01 | 0.30 |
| Corn meal | 0.01 | 0.30 |
| Cottonseed meal | 0.23 | 1.18 |
| Oatmeal | 0.08 | 0.44 |
| Soybean meal | 0.29 | 0.69 |
| Wheat | 0.04 | 0.39 |
| Wheat bran | 0.11 | 1.21 |
| Wheat midds | 0.08 | 0.93 |

As some combination of these materials make up about 75 per cent of most poultry rations, it is easy to see why a positive source of calcium must be added. If meat or fish sources are drastically reduced in the ration, it may also be necessary to add a high phosphorus source such as bone meal, which also supplies calcium.

### Reaching the Right Ratio

Nature sets calcium-phosphorus ratios. The importance of the calcium-phosphorus ratio lies chiefly in the fact that these two mineral elements are used together in definite, consistent ratios in the formation of bones with extra calcium required for egg shell-making.

The calcium-phosphorus ratios suitable for poultry feeds are not the same as those applicable to dairy rations. Furthermore, the total percentage of calcium in a poultry ration may vary from as low as 1.9 per cent to as high as 4.6 per cent depending on the phosphorus con-

Limestone Products Corporation of America, Newton, New Jersey
(Mineral Highlights, Vol. 1, No. 8)

tent of the ration and whether it is to be fed as an all-mash diet or as a laying mash to be fed with grain. These variations are shown in the following table which is reproduced from Food and Life, The Year Book of Agriculture, 1939, published by the U. S. Department of Agriculture. The table is from a section on nutritive requirements of feeding poultry by Harry Titus, senior biological chemist in charge of poultry nutrition investigations, Bureau of Animal Industry.

**TABLE 1 — Corresponding approximate percentages of phosphorus and calcium for all-mash diets and for laying mashes with which grain is to be fed.**

| All-mash diets | | Laying mashes (with which grain is to be fed) | |
|---|---|---|---|
| Phosphorus content | Calcium content | Phosphorus content | Calcium content |
| % | % | % | % |
| 0.6 | 1.9 | 0.8 | 3.7 |
| .7 | 2.0 | .9 | 3.8 |
| .8 | 2.1 | 1.0 | 3.9 |
| 0.9 | 2.3 | 1.1 | 4.1 |
| 1.0 | 2.4 | 1.2 | 4.2 |
| 1.1 | 2.5 | 1.3 | 4.3 |
| 1.2 | 2.7 | 1.4 | 4.4 |
| 1.3 | 2.8 | 1.5 | 4.6 |

### Calcium-Phosphorus Ratios in Rations for Layers

Chickens can more easily adjust to an excess of both calcium and phosphorus than they can to a mineral deficiency — provided the ratio — the relative or proportional amounts of both calcium and phosphorus—are correct. This fact is stated by Titus:

"A chicken that lays 200 eggs per year puts into those eggs about 400 grams of calcium or about 13 to 15 times as much as there is in her entire body. If the diet is deficient in calcium, a chicken can draw on its skeleton for only enough calcium to make about three or four eggs. From this it is evident that the calcium requirements of laying chickens is very high and that the feed must supply virtually all the calcium that goes into the eggs.

"The proper percentage of calcium in the diet is dependent on (1) the number of eggs laid per bird, (2) the quantity of feed consumed, and (3) the phosphorus content of the diet. Inasmuch as the laying chicken can readily adapt her physiological processes to diets that contain somewhat more calcium and phosphorus than she needs, it is possible to set up standards for the calcium and phosphorus content of the diet that will be applicable under all ordinary conditions. Table 1 shows approximately how much calcium diets of different phosphorus content should contain.

"Occasionally the feed of laying chickens may contain too little phosphorus, especially if it contains very little dried skim milk, dried buttermilk, meat scrap, meat-and-bone scrap, or fish meal. In case the total phosphorus content of the diet is appreciably less than 0.7 per cent, enough steamed bonemeal should be added to bring it up to at least this value."

### Guard Against Deficiencies

"In the practical feeding of poultry it is desirable to guard against possible deficiencies by feeding somewhat more of all the necessary nutrients than the minimum quantities required. This is true of the several mineral elements, as it is of protein and vitamins, but, especially in the case of minerals, care should be taken not to supply too much. Although there is little accurate information about the optimum calcium and phosphorus requirements of growing chickens and turkeys, it is possible to state levels of intake that can be depended on to give satisfactory results."

### Amounts of Calcium Carbonate To Be Added

In order to supply all the mineral elements that the chicken requires, Titus states, it usually is necessary to include in the diet calcium carbonate (as well as salt and manganese and sometimes iodine).

The amount of calcium carbonate to be included in a feed depends upon the other ingredients. "Food & Life" carries tables showing 23 different rations for poultry, with recommended amounts of calcium carbonate ranging from 1 per cent for starting mashes to 6.8 per cent for laying mashes to be fed with scratch grains.

In adding calcium carbonate to rations, it must be remembered that calcium carbonate supplies only about half its volume in the pure element of calcium. In other words, if a mash formula was completely deficient in calcium and it was desired to bring it up to 3 per cent calcium, it would be necessary to add about 6 per cent of calcium carbonate.

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## *Chicken Feathers Lack Curl*

The difference between waterfowl and common chicken feathers is that waterfowl feathers have a natural curl. This curl gives a stuffed pillow or sleeping bag a soft spring feeling. Chicken feathers have a tendency to lie flat and are improved by being artificially curled.

—News release from U. S. Department of Agriculture.

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¶ THE THANKSGIVING turkey, says Advertising Age, is one of those who have reason to be thankful this year, because pushing the date back to the traditional last Thursday in November gave him one more week on the hoof.

*Characteristics Associated With . . .*

# Rapid Growth in Broilers

By A. E. TOMHAVE
University of Delaware

*Condensed from the Peninsula Broiler Journal*

THE rate of growth which broilers maintain during the growing period has an important influence upon the economic success or failure of producing a crop of broilers. It is, however, not alone the rapid rate of growth, which makes for this success, but also certain other factors which are closely associated with rapid growth.

Usually, when a crop of broilers is making rapid growth, mortality is low and the color and appearance of the flock is good in every respect. When the flock lacks color, feathers slowly, and mortality runs high, the rate of growth is usually slower than what the broiler producer likes to see.

Rapid feathering and rapid growth appear to be associated. In the breeding work at the Delaware Agricultural Experiment Station, a study of rapid and slow feathering of birds is under consideration. In this study a comparison was made of the weight at 14 weeks of slow and rapid feathering progeny.

The average weight of 75 males that feathered rapidly was a half pound greater at 14 weeks than was the average weight of a similar number of slow feathering males. In the case of females from the same groups, those feathering rapidly were heavier at 14 weeks than the slower feathering females, but the difference in weights was not as great as for the males.

## More Feed Efficiency

Birds which gain weight rapidly also utilize their feed more efficiently. This is of considerable economic importance to the broiler producers because the cost of feed amounts to at least one-half his production cost. Considerable experimental data are available which show that the rapid growing broilers make the greater pounds of meat per pound of feed consumed when compared with the slower growing bird.

When pigmentation of the shank and skin is lacking, the broiler producer can make up his mind that his broilers are not making proper growth without weighing the birds. Lack of pigmentation which may be due to several different causes, is a sure indication that the broilers are not making maximum growth.

General health, vigor, and viability are also closely associated with rapid growth. When the mortality in a flock of broilers is low, one can make up his mind that the broilers are making rapid growth and will be ready for market at an early age. Every producer knows that an outbreak of any disease in his flock will make it necessary for him to feed his birds for a longer time before they reach market weight. Good health is essential for rapid growth. To have rapid growth in a crop of broilers, it is therefore essential also that the birds possess the factors necessary for rapid feathering, efficient utilization of feed, good pigmentation, vigor, and vitality.

The Peninsula Broiler Journal, Selbyville, Delaware
(The Peninsula Broiler Journal, Oct. 5, 1942)

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# "Blue Backs" of Turkeys

In a recent trip through southern California, I was surprised to see the number of turkey flocks that will go to market as "blue backs," and consequently be sold at a discount.

On talking with the growers, I found an almost unanimous opinion that this was caused by feather picking, due to crowding in the brooders or yards.

Naturally, overcrowding, lack of roughage, and unbalanced minerals will accentuate this feather pulling, but they are not the causes. This starts from a slip of feathers or molt on the low back just above the tail and is, in a way, a forced molt of the first set of feathers. But it never starts in the brooders unless the birds are confined much longer than is the usual custom.

An analysis of this condition shows that it occurs in seasons of high feed costs, and is due to the haste of the grower to get his birds off an expensive starter ration and on to a cheaper grower feed of much lower protein content, supplemented by as much grain as possible. This is particularly true of flocks that are started on a high-powered protein feed, 22 to 24 per cent, and carrying much milk or milk products.

The change from starter to growing ration should be very gradual and should extend over a period of three to four weeks. Turkeys do not take easily to any new feed and it is only natural that a radical change in the diet will give a jolt to their digestive functions, sometimes causing a set-back sufficient to prevent normal feathering. And it is those pin feathers coming out on an almost bare back that start an unbreakable habit of feather pulling which sends the birds to market as "blue backs."

—C. G. Lewis, Pacific Rural Press, Oct. 17, 1942.

# Selling Turkeys Direct

### By H. L. SPOONER

*Condensed from Turkey World*

WHEN Tyler Sprague, Bartonville, Illinois, a suburb of Peoria, started to grow turkeys in 1939 as an amateur, there was no such thing in Peoria as a market price. Most of the turkeys sold in the territory came from the big packing houses. These were sold through retail meat and grocery dealers at varying prices and greater variations in quality. Many of them had been in cold storage. Sprague did not figure that any great profit could be made by following the general trend of selling at wholesale.

## Quality Product Emphasized

He, therefore, developed a long range program. In order to build up consumer demand, he knew it would take a considerable investment in advertising to acquaint potential customers with his high quality turkeys. He knew the advertising cost per unit of sale would be higher the first years but, from the cumulative effect, would lessen each succeeding year. He did not figure on making any profit the first two or three years while establishing his business on a permanent basis.

Sprague's whole idea was to educate the public in the high quality of his product and to build up the business to a point where he would be able to ask and receive a price per pound that would cover all the advertising and marketing frills that had to be added to the actual cost of the turkey and leave a profit besides.

Now, in his fourth year, he has proved his contention to his own satisfaction. The first year he sold 300 turkeys; the second year he sold 1,400; last year he sold 2,800; this year, he will have 4,250 for sale. Each succeeding year he has become more enthusiastic about the possibilities of the business. Each succeeding year he has improved his publicity and marketing methods. Last year these methods comprised direct mail, newspaper advertising, radio announcements, and package advertising.

## Building a Mailing List

His mailing list embraced three different sources. First was about 1,500 names of previous customers taken from the order books. Second was about 600 names of physicians, dentists, and other local professional people secured from a local advertising agency. Third was about 400 names of business houses, factories, etc., which were large enough to consider giving turkeys to their employees for holiday gifts.

From the article, "Pilgrim Turkey Farm Invested in the Future."
(Turkey World, November 1942)

The letters mailed to these three groups were, of course, different. However, the same letterhead was used for all letterheads, the difference being in the wording of the letters themselves.

The letterheads were lithographed beautifully in several colors. They bore the name of "The Pilgrim Farm" and the slogan, "The Best Home Turkeys Ever Had." The message was multigraphed in brown ink. In addition to the sales message, the letters contained an invitation to the recipient to visit the farm and pick out her own turkey. The letters were mailed under first class postage in number nine envelopes, also lithographed to match the letterheads.

Two order cards and a prepaid reply envelope were enclosed. The order cards were similar, except that one had a request on it to give it to a friend. To secure a price of $3 per thousand on the cards, a total of 10,000 were purchased. Some of these are still on hand. Many were used by the persons taking phone orders or personal orders from those visiting the farm. They were ideal for this purpose, as all information needed could be filled in while talking to the customer.

## Cost of Mail Order Campaign

The total cost of the mail order campaign was $151.50. This did not include the labor of addressing letters and envelopes. No record was kept of this, since it was done at home by Mrs. Sprague and some of her friends who were able to use the typewriter.

At the same time the addressing was done, filing cards were made of the names and addresses, a different color for each group. On the previous purchases list, the order number, date, and number of turkeys purchases were typed on the cards. The names of all new purchasers of last year now have been added. These cards will save a lot of work this year and succeeding years.

## Newspaper Ads Used Also

Newspaper ads were run in the two city papers for 10 days before Thanksgiving and Christmas. The ads were small but were run in preferred positions. Each bore a fanciful picture of a turkey. Twenty ads were used in each of the classified and display ad sections, at a total of cost of $305.45.

One of the papers purchased turkeys enough to more than pay for the entire cost of the advertising. The paper used them as prizes for their carriers for securing new subscriptions. The paper sent a photographer to the farm and took pictures of some of the carriers receiving their turkeys. These pictures they used along with a write-up of the farm that gave the latter some good publicity.

After this appeared, the other

paper took some pictures and gave the farm a good write-up at no charge. Taken as a whole, the cost of newspaper advertising was not excessive.

The radio announcements consisted of 35 spots at a cost of $165 and $60 for the Christmas Capers program, a total of $225. However, the radio station purchased turkeys to the extent of $80 at regular retail prices. The turkeys were given by the studio as prizes in the Christmas Capers program to listeners who counted correctly the number of times any given word was spoken during the program.

### Recipes Distributed

In addition, "Pilgrim Farm" book matches were distributed, and recipe blanks for preparing turkey in different ways were given out. The matches cost $75 for 25,000. The recipes cost $30 for 25,000 — 5,000 each of five different recipes.

### Special Carton Made to Order

A marketing innovation was used last year for the first time. This consisted of a cardboard packing carton for each turkey. These were made in the form of a suit case with a good cardboard handle. It was decorated with a picture of a turkey, the name of the farm, etc.

The turkeys were first wrapped in transparent cellophane. They were then placed in the carton with green shredded cellophane. The container was designed by Mr. and Mrs. Sprague. They cost 13.7 cents each in lots of 5,000. The same kind of carton is being used this year with the added legend, "This will make a fine carton for packing your next picnic lunch."

The total cost of all advertising and cartons was about $1,090, or an average of about 40 cents per turkey sold. This cost was less than the difference between what Spragues could have secured for the turkeys at wholesale and what they did receive for them at retail.

It has been, of course, impossible to check up definitely on the results of each type of publicity used. Undoubtedly, it was the cumulative effect of all types that put the idea over.

EVEN WASTE TRIMMINGS and drillings from buttons are being used in laying rations in England, according to an article in the Poultry Farmer and Feathered World (London) for October 23, 1942. The buttons are produced chiefly from a South American nut called the Corozo nut which contains approximately 15 per cent protein and 75 per cent carbohydrate. The trimmings, which resemble crepe paper, are quite soluble.

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## *Certain Types of Lime Injurious to Poultry*

A warning to farmers that certain types of lime and liming materials are unsuitable for poultry work is issued by C. F. Parrish, of North Carolina State College. He says, "There is misconception on the part of some farmers as to lime and liming materials, and how to use them in relation to poultry work."

Lump lime, burned lime, builders lime, and caustic lime are all unsuitable, Parrish said. These are all calcium oxide. The same applies to hydrated lime, water slaked lime, and agricultural lime, which are prepared by adding water to the four types first named.

"This material," said the extension poultryman, "is caustic and, if used on floors or runs, may cause injury to the bird's feet. When used with poultry manure, the loss of nitrogen in the manure will result."

The most commonly used types of lime in poultry work, all of which are useful, are: Ground limestone, agricultural limestone (not to be confused with agricultural lime), air slaked lime, precipitated lime, ground oyster shells, and marl.

Also recommended, in the order named, are: Basic furnace slag, gypsum or land plaster, and wood ashes. These limes are often added to chicken manure by poultrymen with the idea of conserving nitrogen. It would be preferable, however, says Parrish, to add superphosphate at the rate of 2 pounds per day to the manure produced by each 100 hens.

Lime is not a good germicide, said Parrish, but it is a good deodorant to aid in eliminating objectionable odors. It will not aid to any great extent in destroying infection on poultry ranges.

—News Release from N. C. State College.

## *Baled Straw Poultry Houses*

Shortages of adequate housing facilities for expanded poultry flocks are reported from some sections of the country. A likely solution has been advanced by L. F. Payne, head, department of poultry husbandry, Kansas State College. It involves the use of baled straw poultry houses, for which plans are available from either the department of poultry husbandry or the rural engineering department, Kansas State College, Manhattan, Kans.

While baled straw poultry houses are inexpensive to construct, certain precautions should be followed if they are to give good service, Professor Payne declares. After the bales have been put in place, it is advisable to draw them together with heavy wire which is fastened to 2 by 2's or 2-inch round poles at the end of each wall.

A good roof is of great importance. Those who have large quantities of coarse grass or cane can construct a roof which will turn most of the water. Others prefer to put a light covering of straw or hay over the roof, then lay composition roofing paper to turn the water and pile additional straw on top of the paper to hold it in place. Those who can afford to put a board or shingle roof on the baled straw house will add several years to the life of the house and will be assured of a dry condition inside.

—Poultry Tribune, November 1942.

## Tail Carriage and Laying

The average Leghorn pullet coming into maturity has a moderately low, well-formed tail which is generally fairly well spread; as laying continues the tail becomes worn and is carried at a much higher angle. This is largely due to the development of the ovary and oviduct, and the pressure they exercise on the back and tail muscles. The male's tail will also be carried higher as the breeding season passes.

—Poultry (Australia), Aug. 22, 1942.

## Feather Industry Develops in Britain

Before the present war, 95 per cent of the feathers used in England for bedding, millinery mounts, sports manufacture, brushes, etc., came from France, Poland Czechoslovakia, China, South America and other countries, according to an article in Modern Poultry Keeping for October 21, 1942.

The stoppage of imports, however, has resulted in the development of a new feather industry in Great Britain, and farmers are being urged to take particular care in saving all feathers removed from poultry.

Chicken body, turkey body, goose and duck body feathers are now being used for hospital pillows. Chicken body feathers are being used as a war material of "paramount importance," probably for camouflage purposes.

For medicinal brushes, and special brushes for war work where metal ferrules are harmful, the barrels of goose and duck wing quills, because they are impervious to water, are used.

What remains of goose, duck, and turkey wing quills after the barrels

are cut off, is used for dart and badminton shuttle-cock manufacture, solely for the British military services.

Chicken quill feathers apparently are not so useful, and poultry raisers are urged to wet them thoroughly and bury them a foot under ground so that they will compose into a nitrogenous fertilizer.

## Raw Egg Whites Give Relief in Cancer

Preliminary tests indicate that large amounts of raw egg white may give relief in human cancer, according to a report by Dr. Ira I. Kaplan, Bellevue Hospital, New York City and his associate, Dr. Milton Zurrow at the meeting of the Radiological Society of North America in Chicago on December 1.

The new treatment consists of the daily ingestion of a minimum of 3 dozen raw egg whites per day. Seven patients, afflicted with inoperable cancer in its final stages and who had a life expectancy of only a few weeks, were not only kept alive by the raw egg white alone in combination with X-rays, but their general condition was greatly improved, according to the report in the New York Times.

In nearly all cases, the growth of the cancer was checked, while in two instances it was reduced and in another case, under treatment for a longer period, the cancer entirely disappeared and the ulceration was reported "healing nicely."

The tests were initiated as a result of a hypothesis presented a little more than a year ago by William L. Laurence, science reporter for the New York Times. The hypothesis was based on the fact that fast growing cancer cells require greater amounts of biotin than normal adult body cells. Raw egg whites contain a substance known as "avidin" or "anti-biotin," which has the ability to combine with the biotin in the body and make it unavailable to the animal or human being receiving large amounts of it.

The results were not presented as a cure, but rather with the hope that other institutions would make similar tests on hopeless cases, and that large pharmaceutical houses would prepare concentrated extracts of the raw egg white for the purpose of supplying the avidin in simpler form. Three dozen egg whites are equivalent to about one-seventh of a gram of avidin.

# POULTRY RESEARCH

## Vitamin E Saves Vitamin A

Vitamin E saves vitamin A, according to Dr. K. C. Hickman and co-workers of Distillation Products, a subsidiary of General Mills, Inc. and Eastman Kodak Co. It was found that supplements of tocopherols—the active principle of vitamin E—had a pronounced vitamin A—sparing effect.

There appears to be a definite optimum point, beyond which additional amounts of vitamin E gradually lose the vitamin A saving effect. Amounts of vitamin A insufficient to support life, induced good growth when fed with enough vitamin E. Studies are under way to determine to what extent these observations apply to poultry. The economic importance of preserving vitamin A is obvious. (Communication No. 39, Distilliation Products, Inc., Rochester, N. Y.)

—Carl H. Schroeder, Everybodys Poultry Magazine, December 1942.

## Young Bluegrass Saves Feed

Ranging of White Leghorn yearling hens on growing bluegrass resulted in a saving in feed consumption of 10 per cent when compared with birds on a barren ground and on a mature bluegrass pasture, according to G. Davis Buckner, W. M. Insko, Jr., and Amanda Harms, Kentucky Agricultural Experiment Station, as reported in Poultry Science (Vol. 21, No. 5).

Apparently, birds on range will eat considerable young, growing grass, whereas they would pass up mature hybrid grass.

The bluegrass range as a supplement to the complete ration did not influence the size or hatchability of the egg, but it increased the number of eggs laid.

## Olive-Colored Yolks from Acorns

Rations containing 25 per cent and 50 per cent of ground acorn meats, as well as those containing 25 per cent of ground acorn hulls, produced eggs after four days' feeding which had olive-colored yolks, M. W. Olson, Beltsville Research Center, Beltsville, Md., reports in Poultry Science (Vol. 21, No. 6).

Hatchability tests indicated that the hatching power of eggs containing olive-colored yolks may be adversely affected.

The observation that the birds were eating acorns was made in the months of July, August, and September 1941, when it was found that 30 per cent of the chickens in two pens at the Beltsville Research Center were laying eggs with olive-colored yolks.

Recent English experiments indicate that ground acorns can comprise up to 10 per cent of the laying ration without affecting egg production or egg yolk color.

## Vitamin A in Acorns

Acorns of the willow oak were found to possess vitamin A in tests conducted by Thomas R. King, The Virginia Polytechnic Institute, and Harry W. Titus, Beltsville Research Center. The results are reported in Poultry Science (Vol. 21, No. 5).

The tests indicate that the vitamin A activity of the ground acorns, not including the caps, was about 80,000 I.U. or U.S.P., units per pound.

## Massive Doses of Vitamin D Effect Quick Cure of Rickets

The feeding of single massive doses of vitamin D by mouth to chicks with rickets cured them more promptly than when generous levels of the vitamin were added to the diet, J. H. Hooper, J. L. Halpin, and J. C. Fritz, Borden's Nutritional Research Laboratory, Elgin, Ill., report in Poultry Science (Vol. 21, No. 5).

Storage of vitamin D when given in a single massive dose was considerably greater in the case of cockerels, a single feeding of 20,000 A.O.A.C. units protecting cockerels for at least 8 weeks, while pullets received protection for only about 5 weeks.

## Turkey Egg Size Affects Length of Incubation Time

As turkey eggs increase in size, they seem to require somewhat longer to hatch, according to M. W. Olson, Beltsville Research Center, in Poultry Science (Vol. 21, No. 6).

Eggs having an initial weight of 70 to 80 grams required on the average 637.6 hours to complete their incubation; those weighing 80 to 90 grams hatched after 639.8 hours; and eggs weighing 90 to 100 grams required 641.6 hours.

It was also found that storing of turkey eggs over a period of 1 to 16 days did not appreciably affect the length of the incubation period.

## New Species of Coccidiosis

A new species of coccidiosis, termed eimeria brunetti, is reported by P. P. Levine, Cornell University, in the Cornell Veterinarian (Vol. 32, No. 4).

The oocysts and developing forms are found in the lower half of the small intestine, rectum, cloaca, and caeca. In severe infections, the upper half of the small intestine may be involved also.

In observation of birds infected with eimeria brunetti, the daily oocyst elimination regularly reached its peak between 9 A.M and 3 P.M.

Sulfaguanidine, when fed at the rate of 0.5 per cent of the ration, prevented infection with eimeria brunetti.

### Crossbreds Superior in Weight Gains and in Production

Crossbred broilers and layers were superior to related pure-breds in tests conducted by C. H. Bostian and R. S. Dearstyne, University of North Carolina, as reported in Poultry Science (Vol. 21, No. 5).

With few exceptions, crossbred broilers exceeded purebred half-sisters and half-brothers in weight 10 weeks at age and were at least as satisfactory in mortality, appearance, and rate of feathering. Leghorn-Red and Leghorn-Rock crossbreds were heavier than purebred Rocks and Reds. Red-Rock crossbreds were as much as a half pound heavier per bird than purebred Rocks and Reds.

Crossbred pullets hatched in 1940 performed better than their half-sister purebreds. New Hampshire-Rocks averaged 22 more eggs than purebred New Hampshires and 29 more than purebred Rocks. Leghorn-Reds and Leghorn-Rocks were slightly but not significantly better than purebred Leghorns.

### Yolk Absorption in Chicks

First year egg production, body weight at first egg, and average egg weight apparently were not influenced by the degree of yolk absorption in chicks examined at 2 weeks of age, it was concluded by Cecil F. McClary and Gordon E. Bearse whose studies are reviewed in the report of the Western Washington Experiment Station for the year ending March 31, 1941.

The average days to maturity were approximately the same for all yolk sizes in chicks examined at 2 weeks of age, but there were fewer birds that lived to maturity in the chicks where the yolks filled the abdominal cavity.

The investigators conclude, on the basis of records of 3,391 pullet chicks examined over a five-year period, that poor yolk absorption is likely to have its greatest effect before the chicks are 2 weeks of age if it is harmful at all.

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CANVAS for turkey saddles has been somewhat held up because of the need for this material for other purposes related to the war effort, says the Turkey World for October 1942. A survey of available saddle supplies from leading manufacturers indicates that the present supply is somewhat limited and future supplies of canvas are uncertain.

# VIEWS OF THE EDITORS

### Tax and Insurance

If someone told you he had a policy that insured the future prosperity of your business, you would sit up and take notice, wouldn't you? And the premium could be pretty stiff, too, but you'd pay it without batting an eye. Now this "chick box tax" (we'd prefer the term "contribution") goes toward a splendid endeavor carried on by the Poultry and Egg National Board which we believe will result in very good insurance for the poultry industry after this war is over.

It seems to us that there is still too much talk and controversy and not enough action. This is a big job and we shouldn't have to spend too much time as to who will collect it, but rather let's get at the root of the whole situation by getting action from more hatcherymen.

In the relatively short time that the voluntary contribution system was used last spring, a fairly good start was made. Not anywhere what it should be, of course, but it was a starter. Box manufacturers are already reporting that hatcheries are deducting "chick box tax" from invoices and paying only for boxes. Regardless of resolutions which may be passed to do otherwise, the situation will not right itself until the hatcherymen themselves come through and do their little bit, which in the aggregate will prove a worthwhile premium on "insurance" for the future.

—Poultry Supply Dealer, November 1942.

### Ceilings

New Jersey farmers had 130,000 turkeys ready for market early in November and were moved to logical, if not profane, protest against the price ceilings. Turkeys had been under the temporary ceiling set October 5. A permanent ceiling was promised for the 1st of November and it came on Nov. 7. The chief change is a 3 per cent advance to be allowed in February.

A significant fact about the permanent turkey price ceiling announced by the OPA is that prices are set at New York City, and prices on each grade and size sold in Buffalo, Detroit, Chicago, Omaha, and elsewhere throughout the West, are established on a minus freight basis from New York. In other words, the only difference between the New York and the Minneapolis prices is the difference in freight.

Previously the OPA had permitted an upward penetration of the price of egg futures at Chicago, without allowing a similar rise in New York, which put New York in an unfavorable competitive position. Now it is plain to be seen that if St. Paul, Chicago, Milwaukee and Detroit can absorb the northwest turkey crop, there is no incentive to ship on to New York markets, for the only differential is the difference in freight allowance.

The time was when New York got what it wanted, and all it wanted, by outbidding the rest of the country. And whatever advance occurred at New York set the pattern for the rest of the country. Now, under OPA, New York will have no advantage.

This aspect of the situation is of importance, for OPA is expected to set a permanent ceiling for fresh eggs before the temporary ceiling expires on December 5. If the same pattern is to be followed, the only differential between New York and Chicago in egg prices will be the mere differential of freight transportation charges.

It might appear that such a schedule of prices would leave the eastern market to eastern producers, since New York would no longer have the magnet of price to draw in western supplies; but there is another and very important angle to this matter. Prices in the eastern markets must be higher to remunerate eastern producers, who have higher costs; higher taxes, more money invested in each acre of land; higher pay for farm labor; higher costs for feed which must be freighted from the West. Neither the cost of feed nor the cost of labor enters into an egg or a turkey that is looked upon as worth so much in either New York or Chicago, except for the difference in the cost of getting it from the West to the East.

—Frank L. Platt, American Poultry Journal, December 1942.

## Market for More Turkeys

The meat requirement of the United States is approximately 27½ billion pounds annually. The Army, Navy and Lend-Lease requirements need at least 6½ billion pounds of meat. The civilian population would buy 21 billion pounds if it were available; thus, the potential demand is for about 27½ billion pounds. Inasmuch as the present visible supply is about 24 billion pounds, it is apparent that civilians must get along on about 17½ billion pounds. We can thus get a sensible view of the need for voluntarily restricting our meat diet.

It has been suggested by the poultry defense committee that 600 million pounds of roasters be produced this winter as an extra allotment on top of the regular brooding program.

None of us would desire meat if it means depriving our Army, Navy, Air Corps or any of our armed forces of the food needed to win this war. It is apparent that, if they want much meat, many civilians may be forced to keep a backyard poultry flock again for both meat and eggs for the family. A return to the backyard poultry flock is one way to beat the Axis and the meat shortage.

Turkey producers, as a group are in a position to materially help the meat shortage by increasing turkey production 50 to 100 per cent for 1943. The turkey is a bird that can be grown in 24 to 30 weeks, and a 50 per cent increase for 1943 would mean an added 250 million pounds of meat. Doubling 1942 production of 33 million turkeys would be one of the best ways to produce 500 million pounds of extra meat. Most of these turkeys can be grown in those areas where surplus grain is overflowing storage facilities. It will save transportation of the grain, and in turn produce meat efficiently and quickly.

—Rural New Yorker, November 28, 1942.

## Subsidies for Poultry?

Subsidy payments direct to poultry raisers to stimulate egg and poultry production are said to be receiving some consideration in Washington. The idea is to keep ceiling prices from rising, so that consumers won't have to pay any more, but at the same time offer a further incentive to producers. Subsidy payments are being paid on wheat for flour milling and on fluid milk.

So far, we haven't run across anyone in the chicken business who thinks subsidies would be a good thing.

If the ceiling prices for eggs and poultry are too low in the opinion of government officials, they should be increased. Except for the white collar workers, it seems that real wages of industrial labor have risen more than the cost of living since the world was thrown into turmoil in September 1939.

To say that these subsidy payments will help to hold down the cost of living to consumers is just kidding the public. These payments must be passed on in increased taxes. But the greatest weakness of this subsidy plan is the fact that it will add thousands more to the government payroll—thousands of men and women who might be employed on farms or in factories to produce the things needed by our men in the fighting forces.

—Everybodys Poultry Magazine, December 1942.

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MORE than 1,000 live turkeys appeared in the two-hour turkey day parade at Worthington, Minn., on October 8, according to Turkey World. Free pancakes were served to more than 10,000 people.

# Diary of a Poultrymen

### By PERCY S. WHITE

Wayne County, Pa.

*Condensed from Everybodys Poultry Magazine*

**Dec. 1**—The three-day bronchitis has hit the east house; the west house has recovered in health, but not production. The north house is back to normal. Dr. Hook says that my diagnosis as far as name, "three-day bronchitis," is as good as he has heard to date.

**Dec. 3**—"Hold everything," said Sid Cowen as he phoned me long distance from Akron today. "I'll be down the first of next week with a crew of men and will take 300 Christmas trees."

I have been waiting 16 years for just such a message. I figured 16 years ago that some day I might need some extra cash to lift me up by the boot straps; that some day these chickens might go on the blink. Chickens with the pip and three-day bronchitis don't put out much on the production line. But they do eat and the family has to eat, too. The sale of these trees is going to come in awful handy. Sheriff Mills can sit in his office instead of coming out here to sit on me.

**Dec. 5**—According to the weather man, yesterday was the warmest December fourth ever recorded for this area. Today started out the same way, but she ain't what she used to be now. A slight rain fell this afternoon and a high wind will probably blow all night. The insurance company might have to pay for reglazing a few sash for me. High winds usually blow out a sash or two and as I carry wind storm insurance, so what?

**Dec. 6**—I feel the death rattle in my own bones tonight. All day long I have been crawling around under the spruce and pine trees selecting and cutting Christmas trees. Dead needles crawl down my back as I have had lice and mites crawl on me. There is one thing about it—the Old Man, down on his knees under a tree, sure flings a wicked ax. No saddle back stumps, but a regular saw job with an ax.

Donnie dragged the trees out to the road, trimmed them and piled the "brush." Harold tied the greens in 50-pound bundles and loaded the brush on the truck.

**Dec. 8**—Day of days, I am in worse shape tonight than I was last Saturday. It snowed early this morning . . the wet sticky kind. I had been complimenting myself on the fact that I had an overall jacket that was equal to the occasion of crawling around under the snow-covered trees — a jacket that really would turn water, due to the fact that it was well nigh covered with chicken manure.

I made the mistake of bringing a couple of baskets of eggs to the house. Kid White (my wife) was doing the regular Monday washing and nothing would do but that she have the jacket to wash. The substitute jacket was soft, practically worn out by too much washing. I wrung it out at noon and wrung out another clean one at supper. Three wet jackets, all I have, are hanging around the furnace, and tomorrow is another day. Cleanliness might be next to Godliness, but it would be nice to have a dry back.

**Dec. 9**—Due to the press of cutting Christmas trees, I am afraid we have neglected to take the proper care of the nests. It is so easy for the nesting material to become sparse, the result of which is broken and soiled eggs. This means that Kid White and Janie have to spend well nigh twice as long in the cleaning operation.

Just before dark, Harold and I replenished the nests that needed replenishing the most. There are still nests that need attention or will need attention in the near future. As a rule, there always are a few sticking around on the ranch.

**Dec. 10**—The weather man said it would be colder late this afternoon and beyond a doubt his prediction came true. Along about 4 o'clock the temperature dropped to around 20°. It appeared to be high time the fountain lamps were started so that the birds would have warm water to drink. All lamps were cleaned last summer before they were stored in our special lamp cupboard. So it was a simple matter to get them started. Every one started perking without any difficulty. Sometimes a few will flicker and smoke, or the wick can't be turned either up or down.

Sid Cowan and crew arrived early this morning to cut Christmas trees. They took three big truck loads of spruce and pine, but it hardly made a hole in the plantings.

**Dec. 12** — I haven't seen a dead bird in so long that I have forgotten how one looks. There is no question about the fact that I am getting in the same class of many chicken men I have talked to in the past. I think I have arrived at the solution of their state of mind.

During the past 24 hours no birds have kicked the bucket. This is a long enough period for me to forget disagreeable things, especially if forgetfulness is cultivated. And it is such a disagreeable business to handle dead stock. It is even more disagreeable if one thinks about the loss involved, which is plenty. I realized years ago that a dead bird

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was a dead loss and a dead weight when carried to the incinerator.

Dec. 13 – We prepared today for what I hope is a Christmas tree rush next week. All the boards have been cleaned, sheep house and calf pens included. I am sitting Jake to cash in on any tree business I can get.

Dec. 15–Well, the week started off with a bang. Marie, one of Donnie's heifers has a new daughter. The extra skim milk will come in handy for the chickens. There is nothing like having milk, and plenty of it, for the laying stock. At present the birds are getting three different forms of milk–skim, powdered, and semi-solid. It is the same as the proverbial three different kinds of apple pie, barred, covered, and uncovered. Oh! yes, I forgot to mention, we started feeding wet mash at noon today. Semi-solid is used to moisten it, the powdered is in the mash, and the skim milk is used to soak the corn for 48 hours before feeding.

Dec. 16–The hot water heater and tank is the most efficient heating system I have ever seen. In fact it is really too efficient. The stove is too large for the tank. In other words, it is difficult to maintain a fire of small enough volume to heat the water to a reasonable temperature and at the same time keep it alive. I had to carry a few coals from Newcastle this afternoon to replenish the fire bowl.

Dec. 17–As of this week to date, these Christmas tree dealers have gone hog wild. I have sold to four different parties and they have been most enthusiastic. I am enthusiastic, too, for I realize that there will be no sale for them after Christmas.

If the egg market ever goes as flat as the tree market does after Christmas, I am going to close up the shop.

Dec. 19 – These Christmas tree boys are getting cagey. Two of them were down today but they were very cautious in their buying. And I am just as cautious in my cutting. The cut stock must be sold before I cut any more. A tree on the stump is worth many in the brush pile.

Dec. 20–Saturday afternoon was a bad time to do it, but I felt that the little truck should have a good going over. I have a feeling that it is going to pay me awful good dividends to take most superlative care of it. I took it down to Jeromesville for the "works," which consisted of an oil change, lubrication, carburetor adjustment, motor tuning, wheel alignment check-up, and a reshuffle of the tires. The tires also had a good shot of air, causing harder riding but prolonging life.

Dec. 22–I am afraid a mid-winter neck molt has started. In some cases I think it is even more than a neck molt–the real thing. Evidently, it is the result of that three-day bronchitis. I have never tried forced molting, but I think this one was forced on me.

Dec. 23–The Christmas tree trade has revived, partially at least. I was at the auction with the semi-weekly offering of eggs when Kid White phoned that a big truck had arrived from Akron. I tore home without the usual return load of feed, without the trimmings for the Christmas dinner, and without a few gifts I had intended to purchase.

These tree dealers are a peculiar lot, equal in every respect to chickens. They expect perfection in every tree and, in the next breath, admit that nature doesn't produce a perfect specimen in every individual. I start in the fall with a pullet flock of culled, perfect specimens, but it isn't long until they are like the old gray mare–not what they used to be.

Dec. 24 – I finished my belated Christmas shopping this afternoon. The truck was busy in the forenoon hauling hay from here to there, a few bags of feed to the north house, and a trailer load of cleanings from the cow stables.

Dec. 25–"Peace on earth," that is what the carolers sang last night and the Old Man sat with bowed head in silent meditation long after they had left. The day passed rather uneventfully. Harold, May, and son Harry spent the day with May's folks, the Yoders. Kid White had a baked ham and the necessary trimmings for dinner. Janie didn't eat very much dinner, too much excitement and too much candy. Donnie and I worked holiday hours, only doing the essential work.

Two incinerations among the stock and the survivors worked holiday hours, too. It was a down day in production. Christmas Carol Golddust Owl is the name Janie chose for a girl calf born last night. Carol is an odd name for a Jersey calf, but at least it is in keeping with the season.

Dec. 27 – Everything is in apple pie order for the week. The cleaning job was finished before dinner. Even the tree-trimming brush has been hauled away to the gully. Of course, there is lots more brush up under the trees, brush that hasn't been dragged out to the drives, but for the time being, at least, it is out of sight.

Dec. 29 – Harold and Donnie started cleaning the brooder houses. It is a job that should have been done several weeks ago, but this was the best we could do. Three of them have been cleaned in the entirety. That is, all the litter has been removed and scattered on the Fike farm. The ceiling and walls have been swept down and the floor swept up. The windows have been swept off. Strange as it may seem, the houses are still standing.

After the whole job has been completed, each house will be scrubbed with boiling lye water, concentration to float an egg to the size of a quarter. The old residenters hereabouts use that concentration of brine for their pork. A few squirts of creosote ought to make the houses smell better, even if there are no bugs left to kill.

**Dec. 30**—Walter Buss and G. S. Vickers of the Ohio Poultry Improvement Association were out to inspect the flocks. "Vick" removed 10 hens and two male birds. He said they had the go-backs, but wasn't telling me anything I didn't already know. I could have told him that if he had delayed his visit a few days the removed birds would have saved him the trouble of being caught.

**Dec. 31**—The last load of feed of the year came in late this afternoon. Each time I buy feed the price has advanced over the previous one. It is the last day of the year, a blue time for me. I know what is in the past; I don't know what is in the future. In casting back, 1941 has been a rather good year, as years have gone in recent times. There has been no serious sickness in the family, just a few stomach aches, colds, and a shot of hay fever for me. There have been a few heart aches and bitter disappointments, but time at least callouses over when it doesn't heal.

As Kid White and I walk down life's journey, it seems that our lives become more and more insignificant and that our lives become more and more tied up in Donnie and Janie. And yet Donnie and Janie have their own lives to live.

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## *Space at the Drinking Fountains*

Plenty of space at drinking fountains is important. Try eating a few handfuls of something dry—crackers, for instance. Tastes pretty good, doesn't it?—but how long before you trot to the water faucet? Ah ha! Well, the pullet's whistle gets as dry as yours and if there are half a dozen ahead of her at the faucet, what encouragement does she have to eat and eat and eat — as 100 of them must to stow away that 32 pounds a day necessary for 70 per cent production! You may have plenty of room around the water fountains during the day—but the rush hour is late in the afternoon. Check then to learn if a "waiting line" shows a need for added drinking space.

—Eastern States Cooperator, November 1942.

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## *Allocation of Poultry Manpower in Australia*

Because manpower presents quite a problem in Australia with its small population and large area of land, definite allocation of labor for commercial poultry farms and hatcheries of various sizes have been made by the Director General of Manpower according to an article in Modern Poultry Keeping of London.

A commercial poultry farm of 600 to 1,000 layers may have one fit man or woman, which includes the owner, whether man or woman, unless the owner be physically unfit. For a farm of 1,500 to 2,000 layers, one fit man or woman and one farm hand are allowed, and an additional farm hand is allowed for each additional 1,500 layers over 2,500.

Chick hatcheries that are not part of a farm are allowed one fit man or woman for each 30,000-egg capacity, while those over 30,000-egg capacity may have one additional employee in addition to the one fit man or woman.

Where a hatchery is operated in conjunction with a poultry farm, an incubator capacity of 10,000 to 25,000 eggs allows one fit man or woman in addition to the labor required for a farm of 2,000 layers, provided that not less than 2,000 layers are kept. When the capacity is 30,000 eggs or more, two fit men or women are allowed in addition to the allocation of labor for a farm of 4,000 layers, provided that not less than 4,000 layers are kept.

—Everybodys Poultry Magazine, December 1942.

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## *Flocks Can Produce More*

No one who travels much and visits many flocks doubts that the egg production of the average flock could be increased considerably by better feeding and better management. Most flocks are capable of producing more than they actually produce. And this extra production is always the most profitable because, as practically all cost account figures show, the higher the egg production, the lower the cost per dozen of producing them.

—G. S. Vickers, Poultry Supply Dealer, November 1942.

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¶ AN EGG within an egg was recently found by Abe Magni, Westerly, Rhode Island. Mr. Magni reports that a 16-month-old New Hampshire hen laid the large egg, which he thought was a double yolker. When he broke it he found one yolk and the white of an ordinary egg and another egg in the larger shell.

—Everybodys Poultry Magazine, November 1942.

# POULTRY STATISTICS

## Hens on Farms — Rate of Lay

### October Egg Production

| State and Division | Number of layers on hand during October 1941 | 1942 | Eggs per 100 layers 1941 | 1942 | Total eggs produced During Oct. 1941 | 1942 | Jan. to Oct. incl. 1941 | 1942 |
|---|---|---|---|---|---|---|---|---|
| | Thousands | | Number | | Millions | | | |
| Me. | 1,672 | 1,892 | 1,252 | 1,265 | 21 | 24 | 252 | 269 |
| N. H. | 1,443 | 1,637 | 1,104 | 1,252 | 16 | 20 | 198 | 219 |
| Vt. | 730 | 804 | 1,169 | 1,035 | 9 | 8 | 108 | 118 |
| Mass. | 3,406 | 3,802 | 1,122 | 1,209 | 38 | 46 | 507 | 552 |
| R. I. | 403 | 400 | 1,153 | 1,246 | 5 | 5 | 61 | 62 |
| Conn. | 2,251 | 2,275 | 1,122 | 1,197 | 25 | 27 | 316 | 347 |
| N. Y. | 10,808 | 11,753 | 949 | 964 | 103 | 113 | 1,566 | 1,622 |
| N. J. | 4,580 | 5,062 | 1,128 | 1,153 | 52 | 58 | 696 | 760 |
| Pa. | 14,122 | 14,434 | 911 | 936 | 129 | 135 | 1,851 | 2,034 |
| N. Atl. | 39,415 | 42,059 | 1,010 | 1,037 | 398 | 436 | 5,555 | 5,983 |
| Ohio | 16,004 | 16,750 | 930 | 905 | 149 | 152 | 2,059 | 2,216 |
| Ind. | 10,783 | 12,082 | 918 | 825 | 99 | 100 | 1,352 | 1,520 |
| Ill. | 15,382 | 17,044 | 825 | 812 | 127 | 138 | 1,813 | 2,071 |
| Mich. | 8,626 | 9,016 | 818 | 840 | 71 | 76 | 1,173 | 1,244 |
| Wis. | 12,241 | 13,041 | 852 | 825 | 104 | 108 | 1,538 | 1,764 |
| E. N. Cent. | 63,036 | 67,933 | 873 | 845 | 550 | 574 | 7,935 | 8,815 |
| Minn. | 15,246 | 18,507 | 756 | 775 | 115 | 143 | 1,984 | 2,463 |
| Iowa | 21,302 | 23,456 | 769 | 800 | 104 | 188 | 2,666 | 3,250 |
| Mo. | 15,878 | 17,420 | 803 | 763 | 128 | 133 | 1,958 | 2,277 |
| N. Dak. | 3,202 | 3,930 | 670 | 636 | 21 | 25 | 373 | 476 |
| S. Dak. | 5,590 | 6,139 | 704 | 694 | 39 | 43 | 601 | 792 |
| Nebr. | 8,940 | 10,750 | 766 | 775 | 68 | 83 | 1,135 | 1,445 |
| Kans. | 11,334 | 13,155 | 781 | 741 | 89 | 97 | 1,406 | 1,711 |
| W. N. Cent. | 81,492 | 93,357 | 766 | 763 | 624 | 712 | 10,123 | 12,414 |
| Del. | 757 | 808 | 899 | 831 | 7 | 7 | 102 | 106 |
| Md. | 2,666 | 2,805 | 825 | 812 | 22 | 23 | 326 | 355 |
| Va. | 6,531 | 6,717 | 880 | 862 | 57 | 58 | 759 | 859 |
| W. Va. | 2,964 | 3,322 | 893 | 834 | 26 | 28 | 368 | 427 |
| N. C. | 6,474 | 7,227 | 651 | 620 | 42 | 45 | 646 | 753 |
| S. C. | 2,632 | 2,850 | 546 | 570 | 14 | 16 | 242 | 273 |
| Ga. | 4,980 | 5,911 | 564 | 567 | 28 | 34 | 464 | 567 |
| Fla. | 1,556 | 1,609 | 719 | 688 | 11 | 11 | 175 | 191 |
| S. Atl. | 28,560 | 31,249 | 725 | 710 | 207 | 222 | 3,082 | 3,531 |
| Ky. | 7,012 | 8,458 | 815 | 794 | 57 | 67 | 781 | 996 |
| Tenn. | 6,906 | 8,137 | 756 | 763 | 52 | 62 | 724 | 860 |
| Ala. | 5,186 | 5,958 | 657 | 614 | 34 | 37 | 482 | 578 |
| Miss. | 4,932 | 5,624 | 499 | 462 | 25 | 26 | 433 | 503 |
| Ark. | 5,664 | 6,345 | 589 | 546 | 33 | 35 | 552 | 645 |
| La. | 3,205 | 3,784 | 508 | 493 | 16 | 19 | 281 | 319 |
| Okla. | 9,092 | 10,505 | 725 | 707 | 66 | 74 | 987 | 1,196 |
| Tex. | 19,800 | 22,470 | 679 | 679 | 134 | 153 | 2,230 | 2,541 |
| S. Cent. | 61,797 | 71,281 | 675 | 664 | 417 | 473 | 6,470 | 7,638 |
| Mont. | 1,509 | 1,718 | 772 | 769 | 12 | 13 | 190 | 211 |
| Idaho | 1,740 | 1,790 | 874 | 837 | 15 | 15 | 219 | 239 |
| Wyo. | 552 | 639 | 843 | 787 | 5 | 5 | 71 | 82 |
| Colo. | 2,513 | 3,080 | 750 | 790 | 19 | 24 | 293 | 360 |
| N. Mex. | 802 | 859 | 688 | 682 | 6 | 6 | 99 | 102 |
| Ariz. | 446 | 496 | 980 | 831 | 4 | 4 | 53 | 62 |
| Utah | 1,758 | 1,854 | 1,035 | 955 | 18 | 18 | 247 | 268 |
| Wash. | 4,969 | 5,268 | 1,091 | 1,063 | 54 | 56 | 751 | 762 |
| Oreg. | 2,668 | 2,950 | 995 | 1,029 | 27 | 30 | 383 | 407 |
| Calif. | 10,936 | 11,892 | 1,028 | 1,023 | 112 | 122 | 1,499 | 1,635 |
| West. | 28,097 | 30,746 | 975 | 959 | 274 | 295 | 3,833 | 4,158 |
| U. S. | 302,397 | 336,625 | 817 | 806 | 2.470 | 2,712 | 36,998 | 42,539 |

Hens and pullets on farms laid 2,712,000,000 eggs in October—10 per cent more than the previous record October production of last year and 41 per cent above the 10-year (1931-40) average. A record high production for October was reached in all parts of the country. And the 10-year average production for October was exceeded in all parts of the country by percentages ranging from 16 per cent in the West to 58 per cent in the West North Central States.

Total egg production during the first 10 months of this year was also the largest on record for the period—15 per cent above the previous high of last year and 28 per cent above the 10-year average.

The rate of egg production per layer during October was 1 per cent less than the record high of last year—8.06 eggs per layer, compared with 8.17 eggs in October last year and 6.90 eggs, the 10-year average. The North Atlantic area was the only one which exceeded the record rate of lay of October last year, but the rates in all other areas of the country were exceeded only by the record highs of 1941 and 1940. Production per layer during the first 10 months of this year was 129.9 eggs—2 per cent above the previous high of last year and 11 per cent above the 10-year average for those months.

Average number of layers in farm flocks during October was 336,625,000, a record high for the month—11 per cent above a year ago and 21 per cent above the 10-year average. Record numbers were reached in all parts of the country except the West, and even there the number of layers was the largest since 1931.

The average number of pullets not yet of laying age in farm flocks on November 1 was 38.1 birds, which is 5 per cent above the previous record high of a year ago. Present numbers are at a record level in all parts of the country except in the East North Central States, where they are exceeded only by the record of a year ago. Increases of these potential layers over a year ago were 27 per cent in the North Atlantic, 14 per cent in the West, and 13 per cent in the South Central States. There were no changes from the record high of last year in the West North Central and South Atlantic States. The East North Central States showed a decrease of 4 per cent.

—Comment from U. S. D. A. Monthly Egg and Poultry Production Report.

## Receipts of Eggs and Poultry

November egg receipts at the four principal markets ran over 20 per cent above November 1941 as compared to a 12 per cent increase during

### Receipts of Eggs and Poultry at Central Western Primary Markets

| Week Ending | Cases of Eggs 1942 | Cases of Eggs 1941 | Cases of Eggs % Chg. | Pounds of Poultry (000 omitted) 1942 | Pounds of Poultry (000 omitted) 1941 | Pounds of Poultry (000 omitted) % Chg. | Pounds of Young Stock (000 omitted) 1942 | Pounds of Young Stock (000 omitted) 1941 | Pounds of Young Stock (000 omitted) % Chg. | Pounds of Fowl (000 omitted) 1942 | Pounds of Fowl (000 omitted) 1941 | Pounds of Fowl (000 omitted) % Chg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov. 7 | 63,786 | 33,900 | + 88.16 | 8,596 | 7,938 | + 8.29 | 4,452 | 4,978 | −10.57 | 4,049 | 2,835 | +42.8 |
| Nov. 14 | 46,563 | 28,787 | + 61.75 | 7,487 | 7,134 | + 4.94 | 3,979 | 4,377 | − 9.08 | 3,428 | 2,671 | +28.3 |
| Nov. 21 | 59,970 | 25,430 | +135.82 | 7,039 | 6,280 | +12.09 | 3,716 | 3,647 | + 1.90 | 3,268 | 2,518 | +29.8 |
| Nov. 28 | 53,229 | 26.705 | + 99.32 | 6.607 | 5.997 | +10.16 | 3,445 | 3,649 | + 5.60 | 3,038 | 2,269 | +33.90 |

### Receipts of Eggs at Eastern Egg Auctions

| Week Ending | No. of Plants | Cases Received During Week | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|
| November 7 | 25 | 38,414 | −0.5 | +28.7 |
| November 14 | 21 | 36,442 | +3.2 | +28.7 |
| November 21 | 22 | 40.853 | +3.5 | +32.1 |
| November 28 | 24 | 43.744 | −2.1 | +16.4 |

### Receipts of Eggs at Pacific Coast Primary Markets

| Week Ending | No. of Plants | Cases of Eggs 1942 | Cases of Eggs 1941 | % Change from Previous Week | % Change from Last Year |
|---|---|---|---|---|---|
| November 7 | 59 | 52,776 | 50,857 | −1.14 | + 3.77 |
| November 14 | 59 | 50,133 | 51,920 | −3.89 | − 3.44 |
| November 21 | 57 | 48,968 | 54,419 | +0.20 | −10.02 |
| November 28 | 59 | 49.485 | 54.754 | −5.24 | − 9.62 |

### Receipts of Eggs (cases) at 4 Markets*

| Geographic Section | October 1942 | October 1941 | October % change | Jan. to Oct., Inc., 1942 | Jan. to Oct., Inc., 1941 | Jan. to Oct., Inc., % change |
|---|---|---|---|---|---|---|
| New England | 67,495 | 47,649 | +41.7 | 721,962 | 453,262 | + 59.3 |
| Middle Atlantic | 149,389 | 123,786 | +20.7 | 2,366,414 | 1,880,552 | + 25.8 |
| South Atlantic | 10,353 | 10,044 | + 3.1 | 308,118 | 195,421 | + 57.7 |
| East North Central | 167,511 | 109,399 | +53.1 | 2,888,163 | 2,734,746 | + 5.6 |
| West North Central | 297,060 | 279,089 | + 6.4 | 5,225,995 | 6,314,186 | − 17.2 |
| South Central | 1,024 | 723 | +41.6 | 154,450 | 74,364 | +107.7 |
| Mountain | 14,089 | 20,287 | −30.6 | 201,648 | 325,910 | − 38.1 |
| Pacific | 13,055 | 28,193 | −53.7 | 114,797 | 171,395 | − 33.0 |
| Miscellaneous | 275 | 243 | +13.2 | 3,309 | 3,295 | + 0.4 |
| TOTAL | 720,251 | 619,413 | +16.3 | 11,984,856 | 12,153,131 | − 1.4 |

### Receipts of Dressed Poultry (pounds) at 4 Markets*

| Geographic Section | October 1942 | October 1941 | October % change | Jan. to Oct., Inc., 1942 | Jan. to Oct., Inc., 1941 | Jan. to Oct., Inc., % change |
|---|---|---|---|---|---|---|
| New England | 2,300,497 | 2,038,715 | +12.8 | 9,917,728 | 10,685,389 | − 7.2 |
| Middle Atlantic | 4,338,548 | 3,712,469 | +16.9 | 47,728,458 | 50,057,846 | − 4.7 |
| South Atlantic | 8,425,183 | 4,460,531 | +88.9 | 62,438,641 | 35,758,290 | + 74.6 |
| East North Central | 5,800,584 | 4,491,878 | +29.1 | 31,235,394 | 28,465,871 | + 9.7 |
| West North Central | 34,687,723 | 31,598,609 | + 9.8 | 135,609,225 | 129,212,819 | + 5.0 |
| South Central | 1,052,034 | 843,518 | +24.7 | 13,726,568 | 15,595,589 | − 12.0 |
| Mountain | 278,813 | 679,581 | −59.0 | 4,046,823 | 4,009,869 | + 0.9 |
| Pacific | 119,036 | 657,845 | −81.9 | 7,956,522 | 9,494,779 | − 16.2 |
| Miscellaneous | 81,640 | 0 | – | 472,870 | 0 | – |
| TOTAL | 57,034,058 | 48,483,146 | +17.7 | 313,132,229 | 283,280,452 | + 10.5 |

*New York, Chicago, Philadelphia and Boston.

October. Prior to August, heavy diversions to breaking plants were reflected in receipts on the larger markets being lighter than a year previous. It is also of note that receipts on larger markets would be heavier but for army buying at shipping points in the Midwest. Weekly receipts of eggs at the Central Western packing plants continued to decline seasonally during November. The decline, however, was less severe than a year ago. November receipts were approximately 95 per cent above a year previous, whereas during October the average increase was approximately 40 per cent above October 1941. Weekly average receipts per plant dropped to 223 cases by mid-November as compared to 392 a month earlier and were less than one-tenth of the seasonal high of early April. It is reasonable to assume that the seasonal low point has been passed. This point normally being the third or fourth week of November. At Pacific Coast plants, receipts declined further and for the first time in over a year dropped below the previous year.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Egg Prices

Strong demand, rapid exhaustion of reserve stock and announcement of 1943 production goals high lighted the November poultry products markets. Wholesale prices continued very firm during November and would undoubtedly have moved upward but for ceiling restrictions. However, in many instances these prices appeared largely nominal as dealers were able to move their limited receipts and storage stocks in jobbing channels of trade having higher permissable ceilings.

Demand was unusually strong with fresh and storage supplies dwindling as the month progressed. Customers became less critical of quality as the supply situation became more acute. Production of fresh eggs exceeded those of a year ago, but at this period of lightest seasonal production fresh eggs play a minor role. This year light available stocks of storage eggs and the abnormally heavy demand were the dominating factors. However, there were some increases in nearby egg receipts at the close of the month with appreciable increases anticipated from now on which should overcome in a few weeks the present shortage due to light storage reserves.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### 1942 Egg Prices at New York City

| Kind | Nov. 6 | Nov. 13 | Nov. 20 | Nov. 27 | Nov. 27 '41 |
|---|---|---|---|---|---|
| Mixed Color Firsts | 37¾ | 37¾ | 37¾ | 37¾ | 38½-39 |
| Wholesale Sales of Fancy and Extra Fancy White | 52-55½ | 53-55½ | 55½ | 55½ | 40½-43 |
| White Specials | 49 | 49 | 49 | 49 | 40 |
| Pacific Coast Specials | 54½ | 54½ | 54½ | 54½ | 42½-43 |
| Brown Specials | 47 | 47 | 47 | 47 | 41 |

## Egg-Feed Ratios

### New York Egg-Feed Ratio

| Week Ending | Dozens of Eggs to Buy 100 lbs. of Laying Ration 1942 | 1941 | 1940 | Avg. Egg Price per Doz. (Dollars) 1942 | 1941 | 1940 | Avg. Feed Cost per 100 lbs. (Dollars) 1942 | 1941 | 1940 |
|---|---|---|---|---|---|---|---|---|---|
| November 5 | 5.0 | 5.9 | 6.0 | .455 | .382 | .324 | 2.30 | 2.25 | 1.93 |
| November 12 | 5.1 | 5.3 | 6.6 | .455 | .406 | .298 | 2.34 | 2.25 | 1.97 |
| November 19 | 5.2 | 5.6 | 6.7 | .455 | .408 | .297 | 2.38 | 2.31 | 1.98 |
| November 25 | 5.2 | 5.9 | 6.5 | .455 | .391 | .302 | 2.37 | 2.30 | 1.97 |

### Chicago Egg-Feed Ratio

| | Dozens of Eggs to Buy 100 lbs. of Laying Ration | | | |
|---|---|---|---|---|
| Year | Nov. 7 | Nov. 14 | Nov. 21 | Nov. 28 |
| 1942 | 4.12 | 4.22 | 4.21 | 4.24 |
| 1941 | 4.39 | 4.14 | 4.02 | 3.99 |

### Central California Egg-Feed Ratio

| | Dozens of Eggs Required to Buy 100 lbs. of Laying Ration | | | | | |
|---|---|---|---|---|---|---|
| | 1942 | 1941 | 1940 | 1939 | 1938 | 1937 |
| October | 5.20 | 5.83 | 5.26 | 6.01 | 4.43 | 5.51 |
| January-October | 6.82 | 6.92 | 8.36 | 7.18 | 6.95 | 8.80 |
| Year | | 6.71 | 7.87 | 7.17 | 6.50 | 8.27 |

—Data compiled by Dorothy B. Erdahl, University of California.

## Eggs in Storage

Shell eggs continue to move out of storage at an abnormally heavy rate. During the first four weeks of November 1,352,559 cases, or approximately 60 per cent of the November 1 holdings in the 35 markets were moved into consumptive channels. Furthermore, 34.6 million pounds, or about 28 per cent of the frozen eggs were moved out during this period. Shell eggs in U. S. storages November 1 were the lowest on record for that date, totaling 3,098,000 cases of which all but 600 cases were commercially owned. On November 1, 1941, commercially owned stocks totaled 3,271,000 cases and the 5-year average 3,724,000 cases.

Frozen eggs in U. S. storages November 1 totaled 180.8 million pounds, as compared to 234.9 million pounds on October 1 and a 5-year November 1 average of 119.6 pounds. On October 31 the Government resold to members of the industry 5 million pounds of their frozen egg stocks. Liquid egg production totaled 1,141,000 pounds during October as compared with 1,951,000 pounds a year ago.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Storage Holdings of Eggs

| Kind | Nov. 1 5-Yr. Avg. 1937-41 | Nov. 1 1941 | Oct. 1 1942 | Nov. 1 1942 | % Change Nov. '41-Nov. '42 |
|---|---|---|---|---|---|
| | | Thousands | | | |
| Shell Eggs (cases) | | | | | |
| AMA and FSCC | | 586 | | 600 | + 2.38 |
| Commercial | 3,724 | 3,271 | 5,421 | 2,498 | −23.64 |
| Total | 3,984 | 3,857 | 5,421 | 3,098 | −19.68 |
| Frozen Eggs (lbs.) | | | | | |
| AMA and FSCC | | 27,321 | 5,695 | | |
| Commercial | 114,146 | 126,522 | 229,181 | 180,811 | +42.90 |
| Total | 119,618 | 153,843 | 234,876 | 180,811 | +17.52 |
| Frozen Case Equivalent (cases)* | | | | | |
| Total | 3,190 | 4,102 | 6,263 | 4,822 | +17.55 |
| Total (cases) | 7,174 | 7,959 | 11,684 | 7,920 | − .50 |

*Frozen eggs are converted on the basis of 37.5 pounds to the case.

## Poultry in Storage

### Storage Holdings of Poultry

| Kind | Nov. 1 5-Yr. Avg. 1937-41 | Nov. 1 1941 | Oct. 1 1942 | Nov. 1 1942 | % Change Nov. '41-Nov. '42 |
|---|---|---|---|---|---|
| | | Thousand Pounds | | | |
| Broilers | 10,730 | 13,387 | 9,262 | 10,661 | −20.37 |
| Fryers | 8,481 | 13,983 | 11,303 | 16,771 | +19.93 |
| Roasters | 18,742 | 24,853 | 20,063 | 36,669 | +47.54 |
| Fowls | 20,527 | 29,592 | 29,761 | 43,760 | +47.87 |
| Turkeys | 7,450 | 8,245 | 8,009 | 12,469 | +51.23 |
| Ducks | 10,185 | 11,088 | 9,377 | 8,031 | −27.58 |
| Miscellaneous | 20,038 | 15,073 | 17,381 | 19,459 | +29.09 |
| Unclassified | | 11,760 | 10,349 | 13,387 | +13.83 |
| Total | 95,073 | 127,981 | 115,505 | 161,208 | +26.04 |

## Poultry Meat Prices

Although turkeys occupied the center of interest during November other classes of live poultry were in good demand. Prices were easy and irregular and receipts more than ample to light demand early in the month. Aided by cooler weather demand improved. Supplies also increased and the situation generally showed strength the 3rd week of November as a possible turkey shortage loomed. Prices moved upward against ceiling restrictions with New York prices on Wednesday, November 25, as follows: Fowl, all purpose Grade A, 26 cents, Leghorn, 23 cents, Broilers, Rocks 31-32 cents, Crosses 28 cents; Chickens, Rocks 29-30 cents, Crosses 28-30 cents, Leghorns 23-27 cents. Pullets, large, Rocks 33-36 cents. Long Island Ducks 29 cents, Geese, Grade B, 22 cents.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

## Hatchery Operations

### Chicks Hatched by Commercial Hatcheries

| Geographic Division | Oct. 1939 | Oct. 1940 | Oct. 1941 | Oct. 1942 | % Chg. from Oct. 1941 | Jan.-Oct. Inc. 1941 | Jan.-Oct. Inc. 1942 | % Chg. from 1941 |
|---|---|---|---|---|---|---|---|---|
| | | | Thousands | | | | | |
| New England | 2,446 | 2,677 | 3,707 | 4,360 | +17 | 59,982 | 68,820 | +14 |
| Middle Atlantic | 1,339 | 827 | 1,571 | 1,646 | + 4 | 79,724 | 90,060 | +12 |
| South Atlantic | 4,444 | 5,608 | 6,809 | 7,540 | +10 | 105,191 | 119,134 | +13 |
| E. N. Central | 1,070 | 934 | 1,426 | 1,745 | +22 | 279,081 | 296,378 | + 6 |
| W. N. Central | 1,430 | 820 | 1,323 | 1,567 | +18 | 303,699 | 353,993 | +16 |
| South Central | 1,701 | 1,885 | 3,047 | 2,875 | − 6 | 102,972 | 123,763 | +20 |
| Mountain | 77 | 87 | 149 | 162 | + 8 | 17,660 | 16,678 | − 6 |
| Pacific | 1,983 | 1,551 | 2,505 | 3,060 | +22 | 56,108 | 61,773 | +10 |
| U. S. | 14,490 | 14,389 | 20.537 | 22,955 | +11 | 1,004,417 | 1,130,599 | +12 |

## Government Purchases

### Purchases of Eggs by the USDA

| Week Ending | Shell Eggs | Dried Eggs |
|---|---|---|
| | Cases | 1,000 lbs |
| November 7 | | 1,320 |
| November 14 | | 506 |
| November 21 | | 809 |
| November 28 | | 1,005 |
| 1942 Total to November 28 | 451.445 | 202,590 |

## Egg Breaking Operations

Incomplete reports from egg driers indicated that on November 1 there remained 1,109,000 cases of shell eggs and 54,872,000 pounds of frozen eggs earmarked for drying against commitments on dried eggs for delivery to F.S.C.C. This was equivalent to almost one-third of the total shell egg supply and about 27 per cent of the frozen. Approximately 830,000 cases of storage shell eggs and 28.2 million pounds of frozen stock were converted to powder during October. Dried egg production for October totaled 22.4 million pounds as compared to 7.2 million pounds last year. Approximately 75 per cent was dried from frozen liquid and storage shell eggs.

—Comment from U. S. D. A. Monthly Egg and Poultry Markets Review.

### Frozen Egg Production 1940-42

| Month | 1940 | 1941 | 1942 |
|---|---|---|---|
| | Pounds | Pounds | Pounds |
| January | 707,000 | 915,000 | 3,075,000 |
| February | 733,000 | 8,140,000 | 13,626,000 |
| March | 29,481,000 | 39,383,000 | 42,686,000 |
| April | 44,029,000 | 46,826,000 | 59,001,000 |
| May | 53,662,000 | 53,303,000 | 57,090,000 |
| June | 41,283,000 | 46,560,000 | 52,750,000 |
| July | 12,749,000 | 26,555,000 | 17,755,000 |
| August | 5,115,000 | 9,848,000 | 5,636,000 |
| September | 1,249,000 | 2,845,000 | 3,050,000 |
| October | 249,000 | 1,951,000 | 1,141,000 |
| November | 216,000 | 588,000 | |
| December | 105,000 | 265,000 | |
| Total | 189,578,000 | 237,182,000 | |

### Dried Egg Production, October 1941-42

| Commodity | Oct. 1941 | Oct. 1942 | % change in 1942 |
|---|---|---|---|
| | Pounds | Pounds | |
| Whole | 6,441,699 | 21,951,296 | +241 |
| Albumen | 259,068 | 233,265 | − 10 |
| Yolks | 525,906 | 256,007 | − 51 |
| Total | 7,226,673 | 22,440,568 | +211 |
| Firms reporting | | 62 | |

## *The Pen at the End*

With less help, and more birds than you can take care of without going on the gallop, there is danger that the last pen may be slighted. The caretaker will pay less attention to the birds, they will observe that he's in a hurry, and the net result is likely to be fewer eggs in that pen at the end.

Try starting at the far pen part of the time in making the round of the pens and you'll get better acquainted with what the birds are doing.

—Everybodys Poultry Magazine, December 1942.

¶¶ WE READ where farmers in the midwestern states are arranging with egg drying plants to supply them with egg shells which are pulverized and spread on the land in place of lime, says Lorraine L. Engel in the U. S. Egg and Poultry Magazine for October 1942. The source of such material is practically endless when one realizes that many of these drying plants utilize upward from two freight cars of eggs every working day.

¶¶ MERGER of the American and National league baseball circuits for the duration with the use of the idle stadiums as "super poultry and egg production plants to alleviate the food problem," was the suggestion made by a reader of the New York Times in a letter to the sports editor.

# His Pullets Will Eat Grass This Winter

*Condensed from Eastern States Cooperator*

YOU can't escape it. One is just urged to tip his hat and offer a word of praise as he walks across the lush poultry range which gives both feed and encouragement to the 4,000-odd pullets on the well-managed acres of Raymond S. Taylor, Pennsylvania White Leghorn breeder.

Standing at one corner and looking across, the Taylor range is a fine sight. More than 4,000 pullets on eight acres — and yet there is no hint of crowding. And a really bare spot is something hard to find. Clover from 3 to 6 inches high—broken only by trim buildings and four-row strips of field corn for shade—rewards your gaze in any direction, once you have walked into the range.

When asked why he maintained such excellent poultry range, Raymond Taylor looked a little surprised. With him it is just part of the business to have range, the likes of which would pop many poultrymen's eyes.

## Cuts Feed Bill

But in answering questions as to reasons, Mr. Taylor will remark that good range surely cuts down on the grain bill. And he is emphatic that pullets which range breast-deep in good legume range massed with tender, young growth have color and feathering which birds on poor range just can't match. He feels their general good appearance at housing time points to a stronger surge of stamina, and ability to go through heavy and long laying periods without breaking down.

When seeding a new range, each acre gets 20 pounds of a mixture of: 2 pounds of Ladino, 8 pounds of timothy, 6 pounds of alfalfa, and 4 pounds of Kentucky blue grass.

Year-to-year management of the range includes liming according to Eastern States soil test recommendations and an annual application of about 300 pounds to the acre of 0-20-20 fertilizer.

Several strips of corn, four rows wide, run through the range — to provide inviting shade on hot days. There are as many strips of corn as there are rows of range houses.

A range serves Mr. Taylor for two or three years and during that time the alternate range land is being put to good use as wheat land.

Each year the strips of land through the range where shelters have stood the year before are seeded to Ladino.

Eastern States Farmers Exchange, Springfield, Mass.
(Eastern States Cooperator, December 1942)

Domestic ryegrass was once used, but it had a tendency to grow too rankly and form too thick a mat.

Mr. Taylor usually finds it necessary to take one crop of hay off his range in the spring to enable the birds to keep up with it. When hayed, a strip is left on each side of the corn for protection, until the corn no longer attracts the birds' appetites. Later the range is clipped as needed to maintain uniform height and avoid clumps.

And you will notice another mighty important point with Raymond Taylor's feeding of range birds. Several feed storage houses dot the range, and each one has a scale and feed consumption record card handy for keeping accurate accounting of feed consumed day by day. At a glance he can determine how each group of birds is being fed —of extreme importance where the owner is kept busy on management and hired help must do most of the work.

Raymond Taylor is a great believer in grass silage, especially for his breeders and, so far as we know, he is one of the few poultrymen who each year put up grass silage for birds in the laying houses. He feels it aids in obtaining satisfactory hatchability and also provides to a certain degree those stamina-favoring results obtained from excellent feed. He also feeds grass silage to pullets producing market eggs for about two months after housing, gradually tapering off the amount fed toward the end of that period.

He begins giving his breeders the benefit of this "summer range" two months before the breeding season opens, and then throughout the breeding season. Each 100 birds get 3 to 4 pounds a day, fed in the mash hoppers.

A poultryman should avoid overfeeding grass silage, for birds which are allowed much more grass than Mr. Taylor feeds will not be able to eat enough mash to receive a proper intake and balance of protein, vitamins and minerals. As each barrel of silage is finished, there will be about 2 gallons of juice remaining. The mash on which this juice is poured is greatly relished by the birds.

Mr. Taylor puts up about 30 barrels—mostly 55-gallon steel drums —of grass silage each fall, mowing poultry range which runs heavily to Ladino. He likes to have the growth about 6 to 7 inches high when cut for silage. Three men working for two mornings will handle the grass silage making job.

Each barrel of grass receives a "solution" containing 3 gallons of molasses and 5 gallons of water. One-third of the solution is put in when the barrel is half full of silage and the remaining two-thirds goes in when the barrel is full and just before the weights are put on. A round wooden frame is placed on top of the silage and about 75 pounds of weight put on.

After 10 days the silage is compressed to about two-thirds its original bulk. Then the fermented grass-molasses silage is taken from a few barrels to fill the others to capacity. As each barrel is filled, it is sealed with a special steel cover which fits over a sponge rubber rim gasket. Mr. Taylor had enough gaskets to go through the 1942 silage-making season but, of course, is wondering what he can use to replace them for another year.

# Broad Breasted Broilers

By EDMUND HOFFMANN
University of Delaware

*Condensed from the Peninsula Broiler Journal*

THIS fall you will hear more about broad breasted turkeys than ever before. Production has increased at an astonishing rate and there are now enough available to really make an impression on the market.

The broad breasted Bronze is the product of the turkey breeders of the Pacific Northwest, especially Washington and Oregon who in recent years have selected for a turkey with an exceptionally wide and fully fleshed breast. This turkey has rather short legs, is very compact and of large size. It must be seen dressed to be appreciated. To visualize the broad breast it is well to think of it as a U inverted as compared to an ordinary turkey whose breast is like a V inverted and a thin turkey whose breast would resemble a T inverted.

There is no genetical reason why a good strain of broad breasted broilers cannot be developed. It is merely a question of time and effort.

## Use of Cornish

Two methods of approach to the problem seem feasible. One entails the use of the Cornish breed of chickens which already has a very broad breast, and a bright yellow skin and shank color. Unfortunately, the Cornish also has remarkably slow growth and poor fertility because its peculiar body conformation is not conducive to frequent or effective mating. The presence of a lethal gene in the genetical make up of the Cornish was reported by Landauer (1935) who observed that still other genes detrimental to the survival of the embryo have been accumulated in the Cornish stock. This of course makes for low hatchability in Cornish. The broad breast of the Cornish appears to be slightly dominant and observations indicate that in a cross between a Dark Cornish male and Barred Rock females the broad breast of the progeny was quite prominent.

There is at least one hatchery in Pennsylvania that is supplying Dark Cornish—New Hampshire chicks for the trade and they seem to be fairly well received. There has been some use of Crossbred Dark Cornish—New Hampshire males on New Hampshire females in New Jersey for a strictly retail trade. In this cross there is enough Cornish broad breast left to offset the New Hampshires slight tendency to be slabsided, but not enough to make the progeny grow too slowly. Fertility is better than when pure Dark Cornish males are used.

So far we have considered only crossbreds, but there may also be a use for the Cornish in crossing with Barred Rocks to introduce the broad breast character and then by selection of the straight Barred Rock matings maintain the broad breast while the undesirable Cornish characters are bred out. This method, of course, has been tried before and is still receiving some attention, but so far no constructive results have come out of it.

The other approach to the broad breasted broiler is to take advantage of the natural variation in the degree of muscling over the breast that occurs in the Barred Rock and New Hampshire breeds and by proper breeding methods intensifying this character until a truly broad breasted strain is developed. This would mean, of course, that sires and dams would have to be progeny tested for the degree in which they transmitted the broader breast. Progeny testing makes it necessary to take measurements of the degree of muscling over the breast of the birds at 14 weeks of age. Because the breast is curved, it is difficult to take accurate measurements, but suitable systems have now been worked out.

Breeding for broad breasts on this basis is being done by several breeders and to a very scientific degree by the Canadian Department of Agriculture.

The foregoing purebred approach seems to hold the most promise, although it is undoubtedly the slower method. Through its use we may anticipate the development of a broad breasted broiler that will cause an even larger revolution in the broiler industry that the Broad Breasted Bronze is doing in the turkey industry.

The Peninsula Broiler Journal, Selbyville, Delaware
(The Peninsula Broiler Journal, Oct. 5, 1942)

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THE BREAKFAST UNIT of the Army's "K" emergency ration includes a can of chopped ham and eggs, among other things.

# *Six Ways to Step Up Production*

If I wanted 28 per cent more chickens, 8 per cent more eggs, and 15 per cent more turkeys, I would:

1. Keep the price of poultry and eggs at a level that is satisfactory to the producer and keep the price of feed in line.

2. See to it that experienced help is not taken off farms and out of poultry plants. I realize Manpower Director Paul McNutt isn't a magician, capable of providing as much manpower as we think we need. There just isn't that much help to be had. But I think farmers and food processors should be given as much consideration as any other war industry. The food industry should be publicly recognized as a war industry. There are still too many people who feel that a man is not as patriotic as he should be if he isn't in uniform. Let's recognize the fact that some of these men can be of more service to their country right where they are.

3. See to it that the few critical materials necessary for raising and processing this food are made available.

4. Allocate territory, if necessary, so that four poultry packers won't send trucks down the same country road to pick up poultry and eggs. This duplication of routes is a senseless waste of time and rubber and I'd stop it immediately.

5. Stop the sale of any chickens that weigh less than 3 pounds. If we need more poultry meat, the easiest way to get it is to put more meat on these small chickens.

6. See to it that some of our ships coming back from Australia and South America bring in the protein feeds we're going to need to produce this additional amount of poultry and eggs.

I think we'd get the job done!

—Copyright, Dec. 17, 1942, Frank Priebe's Weekly Letter to Poultry Raisers.

# *New Processing Method for Chicken Feathers*

Experimental studies on methods of utilizing feathers resulted in a process for grinding chicken feathers and removing the quill particles. This produces a soft, light-weight, downlike product suitable for use in making aviator's suits, sleeping bags, and bedding.

—U. S. Department of Agriculture news release.

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# *Poultry Digest Suspends Publication for Duration*

With the completion of volume 4, the NATIONAL POULTRY DIGEST will suspend publication for the duration of the war. This suspension should be regarded as temporary, however, for it is our intention to resume publication the first January after the cessation of hostilities, and we hope that it will be in January 1944.

We don't like to have to make this announcement, for the work on the DIGEST has been particularly fascinating. From the outset, the purpose of the POULTRY DIGEST has been to assemble the cream of poultry information from a wide variety of sources and publish it in compact, time-saving, easy-to-read form for the person wishing to keep up with the developments in the poultry field. Several weeks were required to glean and edit material that could be read in a few hours.

The manpower shortage has affected almost every type of business activity. Since the Army reached into our editorial department a few months ago, the work of editing both the POULTRY DIGEST and EVERYBODYS POULTRY MAGAZINE, its parent publication, has become a one-man job. But there are limits to one's physical endurance, and this temporary suspension of the POULTRY DIGEST is the easiest way to reduce the hours of work and relieve the pressure. It has involved a staggering amount of detail.

During wartime, with 1943 egg and poultry production goals calling for the highest production in our history, it seems only logical that all energies should be expended in promoting the Food for Freedom program. Whereas the DIGEST has a circulation of only a few thousand. EVERYBODYS POULTRY MAGAZINE reaches more than 100,000 poultry raisers who can contribute greatly to the supplies of eggs and poultry in 1943.

Subscription orders are coming in quite heavily at the present time. but all are being returned. Before the end of the year, refunds will be made on the unexpired portions of all subscription on a pro rata basis.

We will maintain our address list, and when publication of volume 5. is about to begin, we shall contact the entire list.

We still have a supply of binders, having a capacity of 12 issues each, and orders will be filled anywhere in the United States at $1.50 per binder postpaid.

# End of Volume

# End of Title

END OF REEL
PLEASE
REWIND